THE INDUSTRY'S RECOGNIZED AUTHORITY

ROCK PRODUCTS

LARGEST PRODUCER CIRCULATION IN THE HISTORY OF THE FIELD

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Modernize Gypsum Plant to Double Capacity page 62
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H.M.S. Solves Spec Problem for Gravel Producer page 74

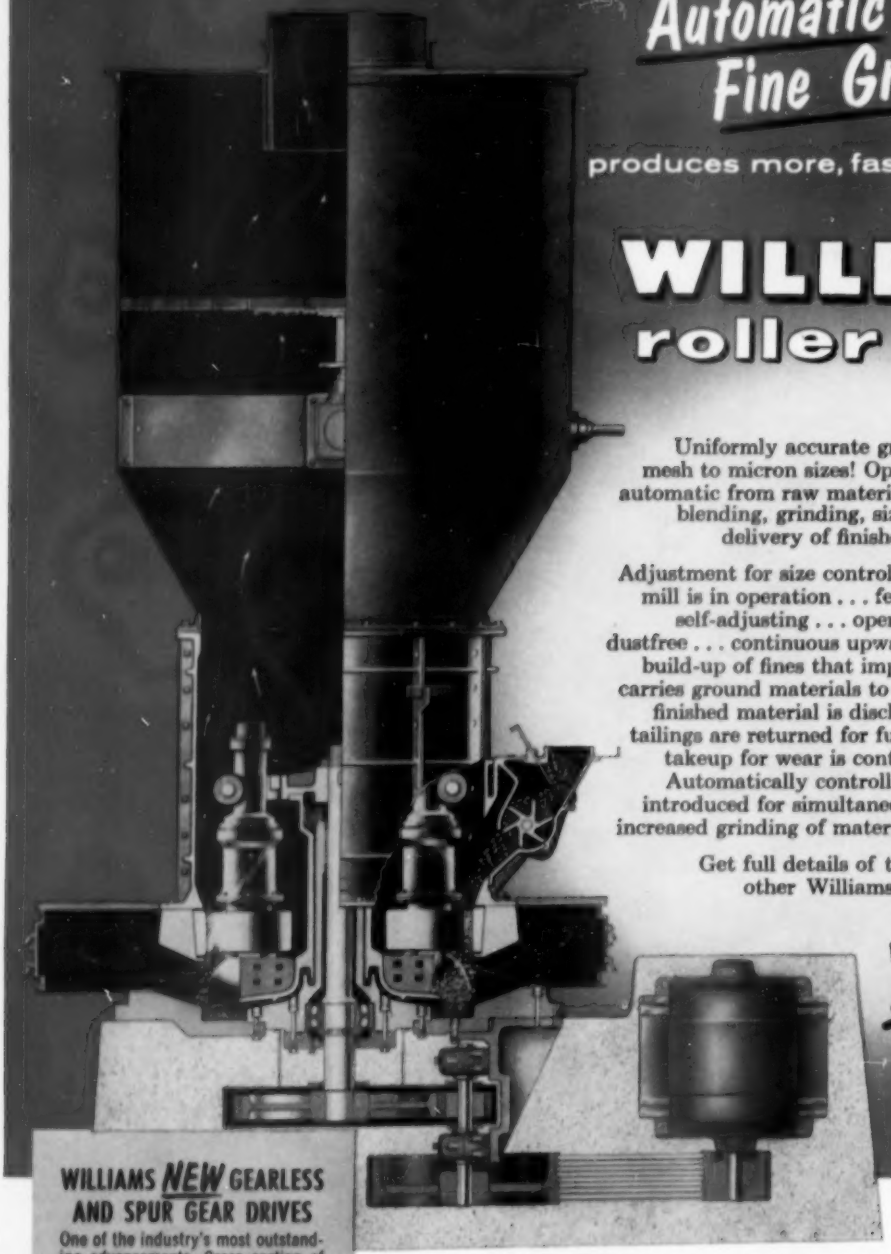
Loading diatomite into trucks at Johns-Manville quarry near Lompoc, Calif.

NOVEMBER 1956

Automatic Precision Fine Grinding

produces more, faster and cheaper

WILLIAMS roller mills



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WILLIAMS PATENT CRUSHER & PULVERIZER CO.

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DON'T WORRY, DEAR — THAT MACHINE'LL BE DOWN FOR REPAIRS IN NO TIME!
SCREECH!
SCREECH!

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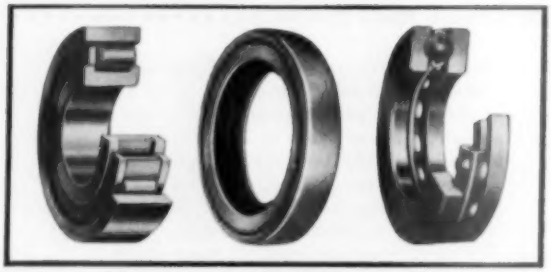

Each Cat anti-friction bearing and lip-type seal has been proved best for its particular application. Each one is assigned a Caterpillar part number—used only for that part in that application. Can you be sure with so-called "will-fits" and "look-alikes"?

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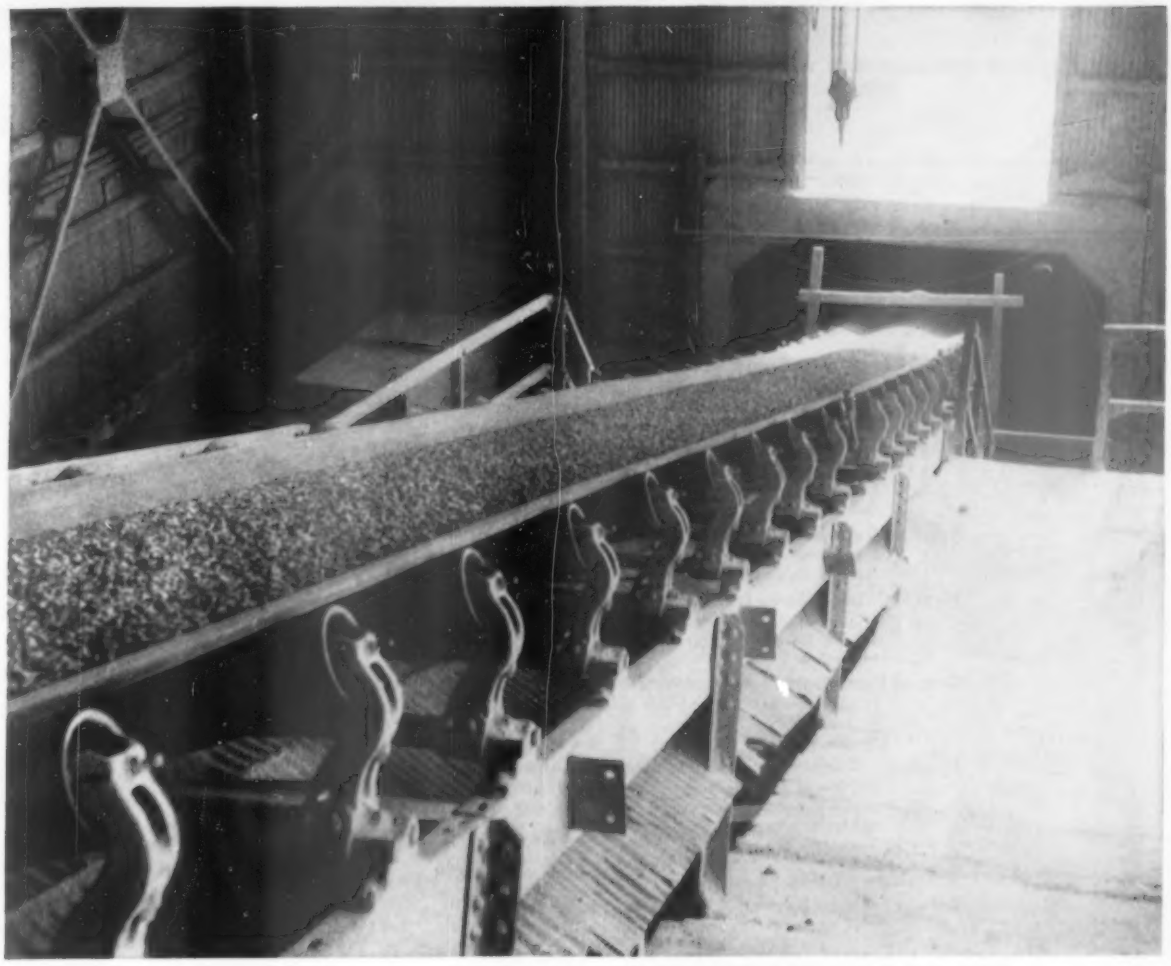

85 million tons handled at belt cost of 9¢ per 1000 tons

More than 85 million tons of copper ore have ridden that B. F. Goodrich conveyor belt since it was first installed 17 years ago at the Chile Exploration Company, Chuquicamata, Chile.

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ROCK

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PROCESSED PRODUCTS

NOVEMBER 1956

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Growing Pains

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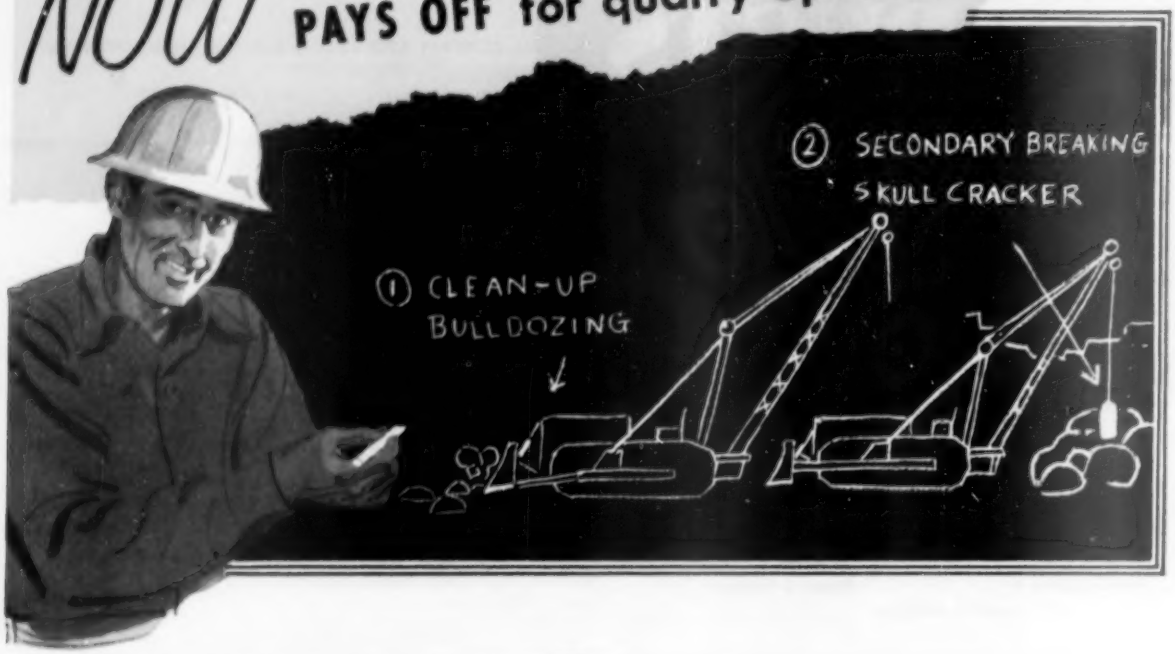
NOW THIS IDEA REALLY PAYS OFF for quarry operators



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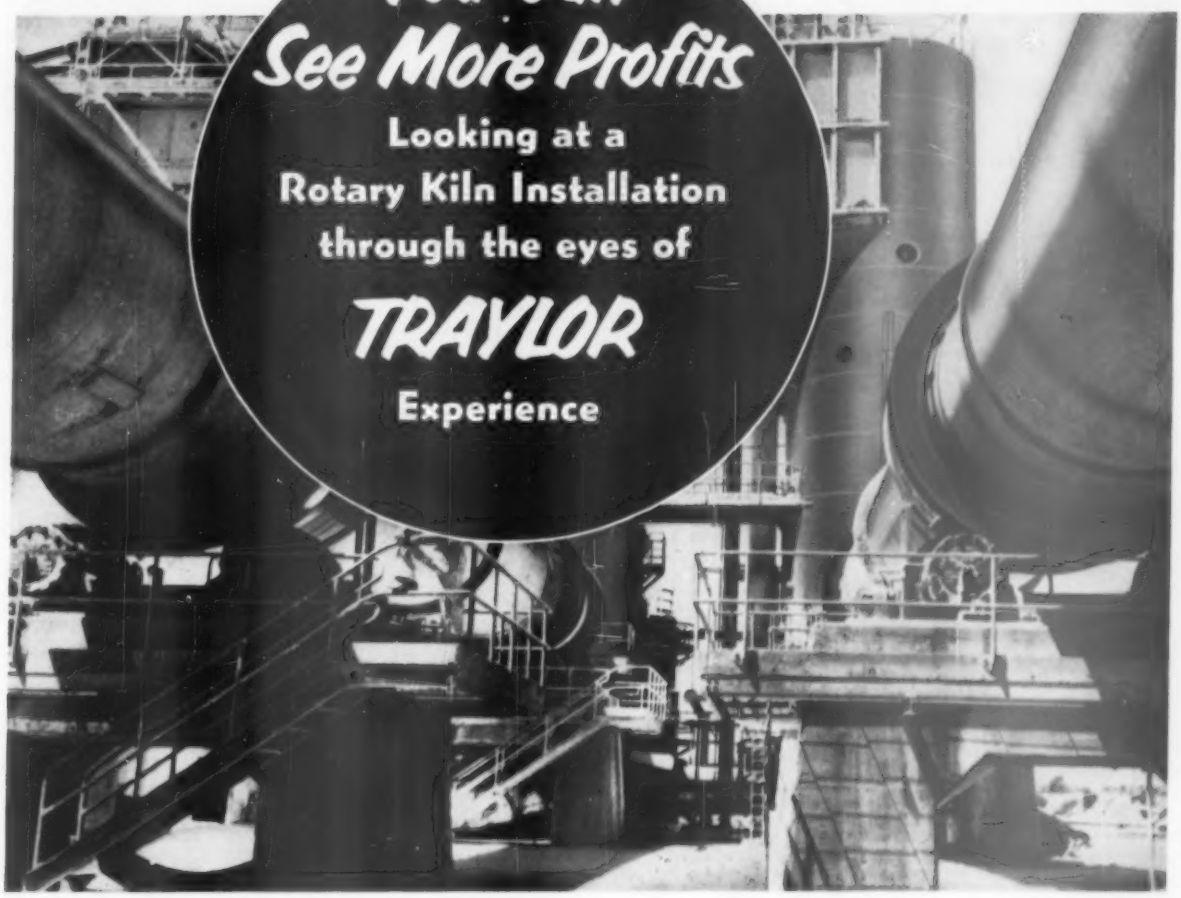

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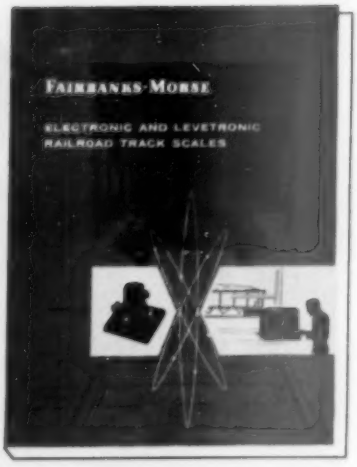
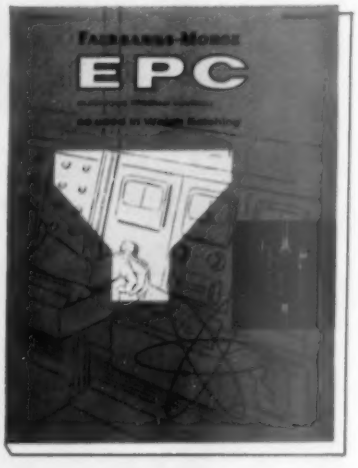
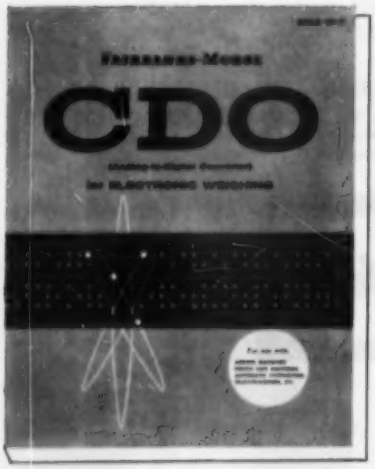




The story of Fairbanks-Morse Electronic Scales in seven volumes



Just off the press—seven new bulletins about Fairbanks-Morse electronic weighing and batching machinery. The covers pretty well identify themselves as illustrated above, except that you might not know that EPC is a completely automatic batching system that operates from punch cards . . . or that Batchetron is a slightly less automatic batcher with quick provision for manual preset of the cycle . . . or that CDO is a "read-out" instrument that will translate the weight message of any of the other six into the language "spoken" by automatic typewriters and automatic adding machines and automatic tape punches.

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contribute to economical equipment operation
at Alabama Aggregate Company

(Below) Part of the fleet of hauling units operated by the Alabama Aggregate Company, Fortson, Ga. (Right) R. E. McWaters, Superintendent, shows Gulf Sales Engineer Charles J. Cason, Jr., a connecting rod from the engine of the diesel electric set that provides electric power for the plant. Recently disassembled for inspection, all parts of this engine were found to be in excellent condition after over 7000 hours of continuous operation with Gulf Super-Duty Motor Oil.

Ask the Alabama Aggregate people—and many other progressive organizations in the industry—why they prefer Gulf products, and you'll probably get an answer something like this: "Gulf lubricants provide an extra margin of protection for equipment, keep maintenance costs at rock bottom levels. Gulf fuels help us to get top engine performance because they burn evenly and completely. And Gulf's cooperative engineering service helps us select just the right fuels and lubricants for every piece of equipment."

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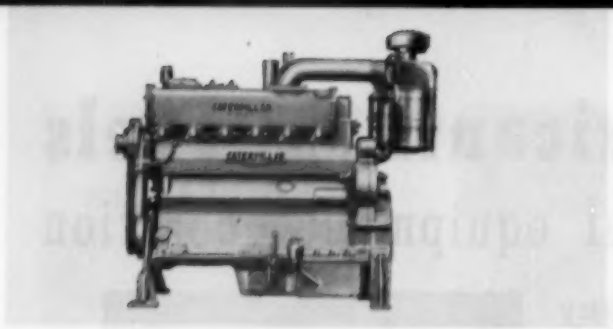

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A modern world must have modern power—more and more of it. It is coming, in ever increasing quantity, from the production lines of Caterpillar, the leader.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

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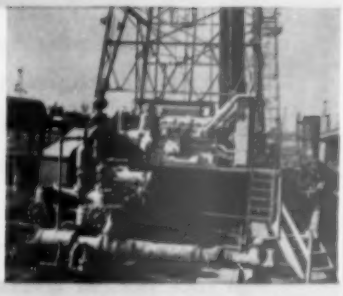
DIESEL POWER FOR PROGRESS



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What's Happening

IN OTHER FIELDS OF INTEREST TO THE ROCK PRODUCTS INDUSTRY

November, 1956

Radio and television are being used as engineering aids on the Table Rock dam construction on the White River near Branson, Mo. A cableway process of construction is used, in which cables carrying an 8- and a 4-cu. yd. bucket are stretched across the river between steel towers. A TV screen in the head operator's booth shows the movement of the cable hoist drums. (Alternate spokes on drums are painted white to give a better TV image.) This, plus the radio hookup to an assistant in the valley below, helps the operator guide the bucket to the pouring site.

More than 1600 25-ton concrete tetrapods are being placed on the seaward side of a new breakwater in the Pacific Ocean near Crescent City, Calif. The four-pronged objects interlock to form a permeable facing that permits quick dissipation of the uplift power left by receding waves; they also provide a rough surface that will absorb the maximum amount of wave energy. This is said to be the first use in the Americas of tetrapods; perfected by French scientists, they have been used effectively in harbors of North Africa.

Melting and welding of graphite has been announced at National Carbon Co.'s new research laboratory at Parma, Ohio. The technique suggests the possibility of prefabricating sheets and panels for the assembly of nuclear reactor moderators, which at present must be built up from graphite blocks. Graphite's neutron-slowing ability makes possible the self-sustaining chain reaction necessary in harnessing nuclear energy.

Coal mixed with water to form a slurry will be piped across 110 miles between Pittsburgh Consolidation Coal Co.'s Georgetown, Ohio, mine and Cleveland Electric Illuminating Co.'s Eastlake, Ohio, power station. A contract calls for the delivery of 18,000,000 tons of coal over the next 15 years, beginning early in 1957. Three pumping stations are located about 35 miles apart, moving the mixture at the rate of 150-t.p.h.

The rumble of 23 coal- and sand-laden barges and a derrick boat loose from their moorings rolled like thunder over the Pittsburgh area recently when bridge piers withstood their resounding impact. The mass runaway began about 4 a.m. when three barges broke loose and started down the Monongahela River, knocking others loose in their path.

A discovery classed as significant was the unearthing recently in a grave in Japan of stone instruments believed to be 5000 years old. It may upset the present archeological theory that Japanese cultural history dates back to the new stone age. The relics are believed to predate the new stone age period.

Heavy construction awards, nationally, totalled $17 billion for the first 40 weeks of 1956, as reported in **Engineering News-Record.** This was an increase of 16 percent above the corresponding period in 1955.

Development of a synthetic porcelain ceramic has been announced by Sauereisen Cement Co., Pittsburgh, Penn. Ceramic-like products for industrial and technical use can be made by a cold-set process without kiln firing. A dry filler and a liquid binder are mixed as it is used, with final setting taking 6-12 hours. Special shapes may be cast in molds of linoleum, cardboard, and the like, where quantity does not justify the use of machine molds, and non-porosity can be attained by impregnating the cement with various materials such as varnish or wax.

Although rejecting the scheme of constructing a concrete tube for traffic in the Firth of Forth, a panel of British experts is said to consider the idea "practical," and favor its use elsewhere in the United Kingdom where conditions are suitable. The proposed 3800-ft. long subway would have had reinforced concrete segments, joined by a watertight seal to form a tube enclosing two 22-ft. wide x 16-ft. 6-in. high vehicle routes. It would have been partly buoyant, pinned by large diameter piles to the bed of the Forth, with ships passing overhead.

To prevent erosion of the Atlantic coastline, jetty-like structures of asphalt and sand, called groins, are being constructed. Forty-four of the groins have been built along the Maryland shore, at a cost of less than $10 per linear foot. A 20-ft. wide apron varies in depth from 12 in. at the water end to 4 in. at the inshore end. Steel mats are laid, over which hot-mix asphalt is poured. The apron is surmounted by a pyramidal dike, 8 ft. at the base and increasing in height from 10 in. to 3 ft. as it goes inland.

Blasting near "Rockingham," the 222-year-old colonial dwelling in New Jersey which General Washington once used as headquarters, made it necessary to move the house a half mile away. A separate stone building housing the kitchen also was moved. Kingston Trap Rock Quarry Co., owner of the adjoining property, paid the cost of the moving project.

Contract awards for the 37 states east of the Rockies totaled $17,416,272,000 for the first 8 months of 1956, up 8 percent over the corresponding period of 1955, according to an F. W. Dodge report. Nonresidential contracts were $6,201,801,000, up 9 percent; residential, $7,330,820,000, up 1 percent; and heavy engineering, $3,883,651,000, up 22 percent.

An order for 400 covered hopper 70-ton cars for handling of bulk cement has been placed by Lehigh and New England Railroad, with delivery specified in ample time for the 1957 peak shipping season. Financing of the $3,666,500 investment by conditional sales contracts was arranged through a group of Philadelphia financial institutions.

From Berlin come reports that East German scientists have developed a new building material called silica-stone, consisting mainly of quartz, which can be produced from waste materials. The degree of porosity can be varied so that it can be used for filtering, and it is said to insure the necessary "breathing" capacity of walls.

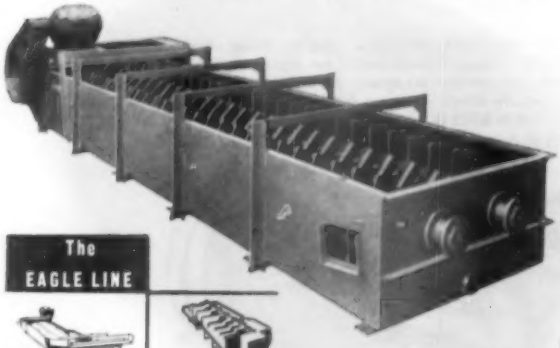
Simplotite is the name given a new mineral, calcium tetravanedite, in honor of J. R. Simplot, who owned the mine in which the mineral first was found. Mr. Simplot is principal owner of large phosphate mines and plants in Idaho.

THE EDITORS

at CONSTRUCTION AGGREGATES CORP., Ferrysburg, Mich.

EAGLE LOG WASHER eliminates 4 soft stone hand pickers!

Construction Aggregates Corp. is located on the Grand River near Lake Michigan, in western Michigan. Output averages 1000 t.p.h. A large percentage of the finished product is shipped by self-unloading lake boats to cities on the Great Lakes. Construction Aggregates regularly produces 150 different specifications of material including foundry sand. Annual production is nearly 1½ million tons.



Minus 1½" gravel from a scalping screen is fed to an Eagle Log Washer which breaks up and washes out 80% plus of the soft stone and hard clay lumps encountered. Before installing the log washer four or five men were required at the screen to pick out soft stone and clay lumps—now only one man is required to watch the screen. The Eagle Log Washer assures material that will meet specifications.

The replaceable corrugated paddle shoes of wear resistant Ni-Hard alloy iron have a washboard effect in abrading and scrubbing gravel, crushed stone or ore. Tubular steel paddle shafts are non-deflecting. Water-lubricated, Hydro-tex marine type bearing eliminates bearing troubles. Truly a log washer you can trust and that will make money for you. Send for 44-page Catalog 55.

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EXPERIENCE, PROGRESS, SERVICE, SINCE 1872

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You can depend upon CF&I Industrial Screens to give long service life with little downtime no matter how tough your screening job. That's because CF&I Screens are made from specially selected steel which is crimped and woven extra tightly to assure high production throughout screen life—even when the screens are subjected to severe abrasion, corrosion or high temperatures.

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THE COLORADO FUEL AND IRON CORPORATION—Albuquerque • Amarillo • Billings • Boise • Butte • Casper Denver • El Paso • Ft. Worth • Houston • Lincoln (Neb.) • Los Angeles • Oakland • Oklahoma City Phoenix • Portland • Pueblo • Salt Lake City • San Antonio • San Francisco • Seattle • Spokane • Wichita
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EDITOR'S PAGE

Safety: A Way of Life

PLANT ACCIDENTS can be controlled completely—if proper conditions are met. That's the belief of Robert Cox, treasurer of Ash Grove Lime and Portland Cement Co. And that's what he told lime producers at an October operators' meeting. He should know, for one of his company's plants has gone nearly five years without a single lost-time accident!

What's the secret to such a fine record? There's no secret, really. It's education—spreading the word of known safety principles—and attitude that count most. According to Mr. Cox, the latter is the key.

An analysis of the company's safety record at its separate plants yields a positive answer to the problem of safety. Look at the work conditions at all plants: the same management, the same fervent desire to further the welfare of workers, the same tools with which to work, the same program of supervision. Basic safety program was the same in design, execution and management. Yet, a single plant established an outstanding safety record. Records at other plants are far above normal, but the one is most superior. Why?

Proper work attitude of each individual employe combined in a cooperative effort to do the right thing in the safe way every time has to be the answer. But there has to be complete receptiveness to the idea by the whole group. Each must **want** to work safely, and each must see to it that the man next to him works safely, too.

This "brother's keeper" idea, completely accepted by every worker at the "record" plant, apparently was the only difference in safety operation among all the company's plants. And it produced results! In the simplest sense, workers at the plant with the high safety record make it hard for any one of them to commit an unsafe act.

Management, of course, is responsible for getting the workers to have the right outlook on safety. If it is believed that the best way to develop the attitude is by personal contact, then management surely must provide all the help, direction and equipment necessary. It must be active in the humanitarian aspect of working relations, to make a safety program successful. The idea has to permeate the whole management group. No foreman, supervisor, department head or officer can be excluded. It's very simple; how can one sell an idea or program if he doesn't believe in it himself?

So, the business of safety is not a one-man proposition. It is a cooperative program of a collective group in which each individual is dedicated not only to his, but to his co-worker's safety. It's not really a program; it's a way of life.

Proof of success is already on the books. The zenith in safety experience can be reached if management has a dedicated belief that the welfare of his employes is supreme, and the employes have faith in that management belief.

You can have a perfect safety record at your plant, too, if you'll work at it.

George C. Lindsay

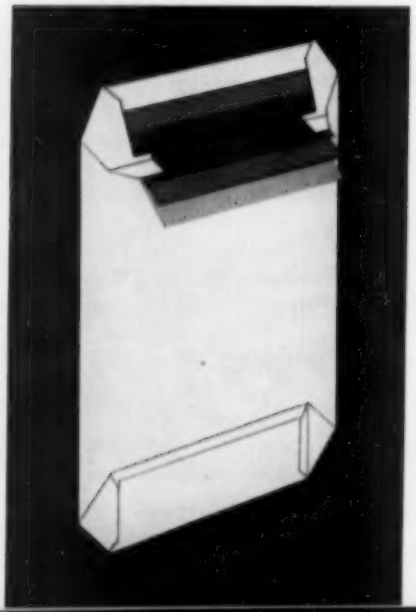
The Man from

takes steps to bring you a Multiwall

STEP 1

HE'LL TELL YOU WHY THE CEMENT INDUSTRY HAS BOUGHT MORE THAN 150 MILLION ST. REGIS STEPPED-END BAGS

Because the Stepped-end Bag was invented by the European manager (Mr. Edgar Hoppe) of our International Division . . . because we've been turning out these bags since 1949...and because we've checked their performance under all sorts of conditions, the Man from St. Regis can give you facts and figures based on actual experience.



COSTS LESS THAN SEWN BAGS – For instance, you should see a little table of comparative savings of the St. Regis Stepped-end Bag over sewn bags. It shows a range of savings from $1.30 per M to $1.45 per M depending on the bag construction. In addition, one company, by using the St. Regis bag, found it possible to reduce the basis weight of their bag from 170 lb. to 150 lb., resulting in a yearly saving of $14,000 on mortar production alone.

BREAKAGE IS LESS – It's a proven fact that Stepped-end Bags have reduced bag breakage in the cement industry. For instance, by using the St. Regis Stepped-end Bag:

Company A reduced breakage to .2 of 1%
Company B reduced breakage to .1 of 1%
Company C reduced breakage to .28 of 1%

IMPROVED APPEARANCE, STACKING, HANDLING – The square-shaped package looks better . . . and the butt printing on either end allows easy identification of the product. As for stacking and handling – just ask the users (we'll supply names if you'd like). They'll tell you that the smooth ends make for neater stacking, easier handling.

St. Regis

Bag that cuts packaging costs

STEP 2

YOU TAKE THIS STEP FOR MORE INFORMATION. FILL IN THE COUPON.

Multiwall Packaging Division
St. Regis Paper Company, Dept. RP-1156
150 East 42nd Street
New York 17, N. Y.

Please send more information about the St. Regis Stepped-end Bag.

Name_____ **Title**_____

Firm_____

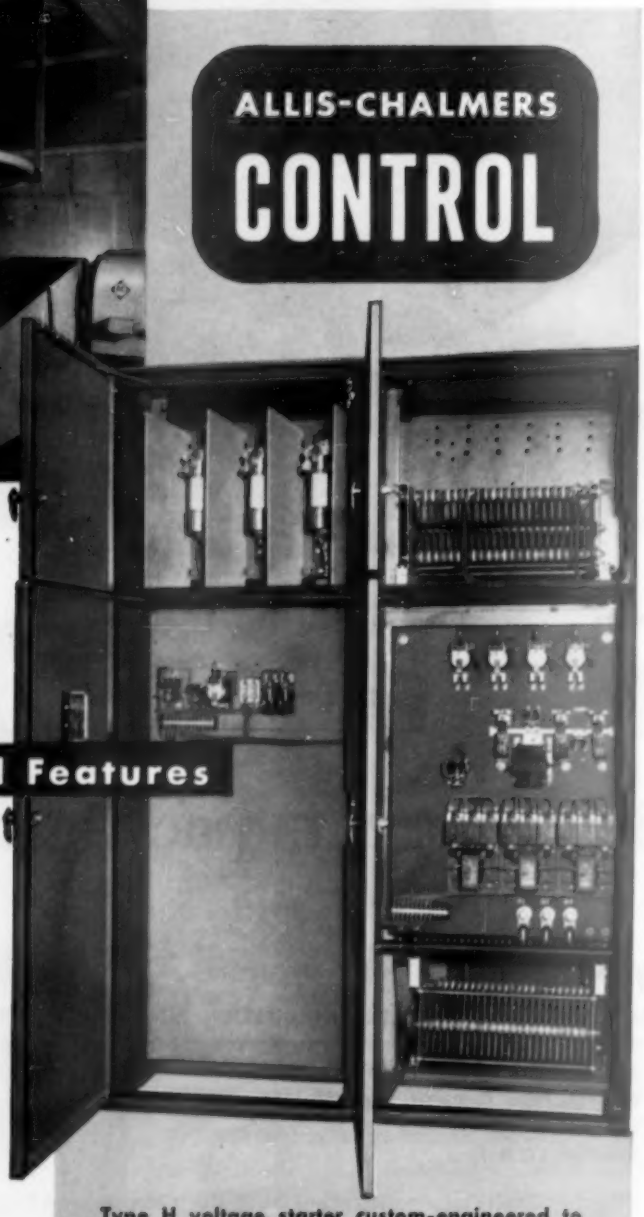
Address_____

City_____ **State**_____

Behind the Man from St. Regis stand experts in every field of packaging, ready to serve you.

ST. REGIS PAPER COMPANY

custom control cuts crusher downtime



As a leading builder of gyratory crushers for more than 75 years, Allis-Chalmers has expert knowledge of crusher control problems . . . and how best to solve them. Special controls for crushers, developed by Allis-Chalmers, offer important operating and protective features that minimize costly downtime . . . assure continuous, dependable operation.

Control Features

Motor Overload Protection
Two separate sets of thermal overload relays... one set sounds remote alarm horn and energizes warning light at slightest sign of overload. If warning is not heeded, second set of relays stops motor when temperature reaches danger point.

Maximum Torque Starting
Control permits maximum torque starting, when desirable. Maximum torque starting often clears crusher jams.

Jog-Reversing Controller
This feature permits rocking to clear jam.

Time-Delay Undervoltage Relay
Crusher rides through momentary voltage dips.

Stall Protection
Motor is disconnected by instantaneous relay when current is greater than normal peak load.

For detailed information, contact your A-C representative, or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin.

Type H voltage starter custom-engineered to control and protect wound-rotor motors driving primary gyratory crushers.

ALLIS-CHALMERS

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How Would You Decide?

A ROUNDUP of day-to-day in-plant problems and how they were handled by management men is given in cases cited below. Each incident is taken from a true-life grievance which went to arbitration. Names of some principals involved have been changed for obvious reasons. Readers who want the source of any of these cases may write to ROCK PRODUCTS.

CAN YOU DISCIPLINE a union officer for questioning the "integrity of management?"

What Happened:

JACK HAMILTON complained to his shop steward about not getting a merit raise. The union officer suggested that they go out and talk to the plant manager. When they got to the manager's office, he was out. The steward told the manager's secretary to "get him here quick." The girl called her boss on the inter-com system.

The manager rushed to his office from the plant, and when he saw that he had been summoned to meet with the worker and steward, he was quite miffed. "What do you fellows want now? I'm very busy and don't have much time to give you," he said.

When he learned of their mission, the manager took out Hamilton's personnel and production records, and discussed the reason for the turndown of the merit raise. The two men left. That evening, when the steward got home, he wrote a strong letter to the plant manager. He accused the management man of being "surly" and charged that the information in the employe's file was "false, misleading and illprepared."

When the manager received the note, he blew his top. He called the steward in and gave him a week's suspension on the grounds of insubordination. The steward took issue, and when the case came to arbitration, he said that the words "false," "misleading" and "illprepared" were not directed *personally* at the plant manager, but were simply descriptive of the inadequate records that were being kept.

What Arbitrator Al.T. Singletary Ruled: "I find that the letter contains language which, on the face of it, is offensive, and questions the integrity of the plant manager as well as the accuracy and reliability of the company's records. I feel that it is up to management to curb and discourage such improper conduct, and therefore, the one weeks' suspension is not excessive."

CAN YOU FIRE AN EMPLOYE for being "accident prone" if all his injuries are "very minor?"

What Happened:

The company was a real stickler for safety. It carried on an continous campaign via bulletin boards, meetings, and employe letters to get workers to develop safe working habits. One of the company's most stringent rules was that an employe must report every injury no matter how slight.

Bill Sandes was a packer. In this job he had to handle a lot of cartons and twine. Within a 15-month period he cut or bruised his fingers some 15 times. Each time he reported for first aid to the nurse as required by company rules.

When this record came to the attention of management, he was discharged for "accident proneness." Bill grieved, and the case came to arbitration. He argued:

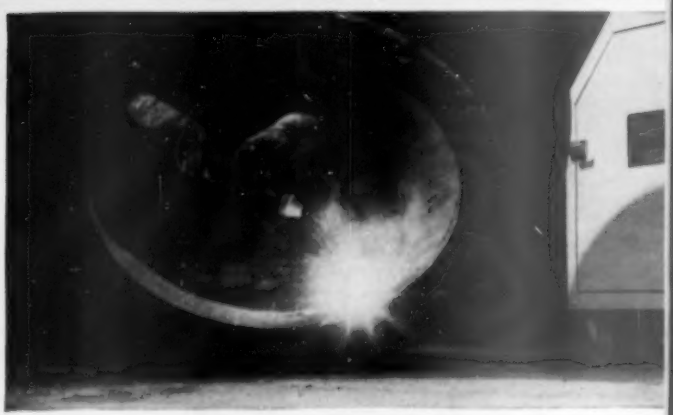
1. These were all minor injuries.
2. Reporting these injuries was a company rule. In other companies such mishaps would not come to management's attention.

The company's position:

1. There is no clear, precise line of demarcation between a safe and unsafe employe. The decision, must rest upon management.
2. By having so many injuries, even though slight, this employe indicated he was incapable of performing his job satisfactorily.
3. The job itself can't be blamed because other employes didn't have to go to first aid anywhere near as often as Sandes.
4. An accident prone employe might hurt himself seriously, so we are taking a preventive step.

(Continued on page 24)

Announcing the NEW AMSCO



In build-up of a worn pump shell with AMSCO Tube Rod, welding time was cut 50%!

The perfect uniformity of AMSCO Tube Rod insures smooth, trouble-free feed to the work. Note hardfacing alloy compactly enclosed within the steel tube.

TUBE RODS

. . . specially designed for FASTER, EASIER semi-automatic HARDFACING

Here's a new, improved Tube Rod . . . *specially designed and engineered* for semi-automatic hardfacing! It has *proved* its speed, quality of weld and uniform deposit in actual use-tests. In many cases, deposition rate has been increased up to 200% over other types of semi-automatic rod.

Amsco Tube Rod is easy to use . . . an inexperienced man can handle it with practically no training! It cuts down operator-fatigue, thus increasing productivity and reducing welding costs.

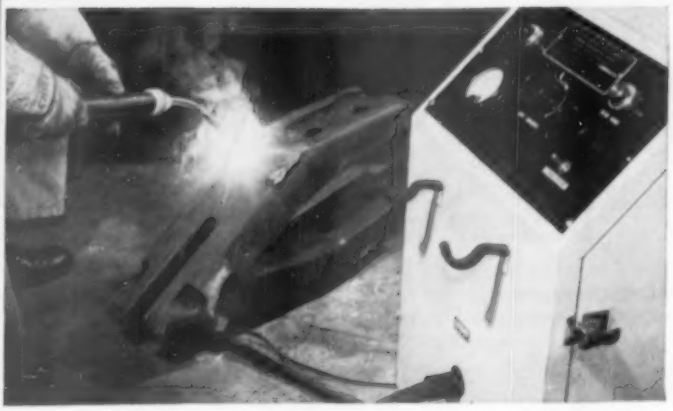
Amsco Tube Rod is a perfectly symmetrical, steel-wire shell, with the various alloys firmly enclosed within the wire, for proper weld-deposit. The steel shell is work-hardened to provide a rod that will not deform or snarl during welding . . . that is simple to drive with conventional feed rollers. Also, the rod is *automatically lubricated*, to insure constant and uninterrupted feeding to the work.

Three types of Amsco Tube Rod are available for semi-automatic welding, in ⅛" diameters only:

- *S/A Manganese Steel*—for all types of manganese steel build-up and repair applications.
- *S/A-53*—a high chromium alloy for general-purpose hardfacing.
- *S/A-33*—for wear resistance in severely abrasive applications.

Amsco Tube Rod is ideally suited for use with the AMSCO MF Semi-Automatic Welder . . . the most versatile and flexible welding machine for all types of shop and field applications. Or, by applying an inexpensive adapter, Amsco Tube Rod can be used with any semi-automatic machine.

For additional information and technical data on Amsco Tube Rod, see your Amsco Welding Distributor. Or write to Amsco Welding Department SA, Chicago Heights, Ill.



Build-up of a dipper base is much easier and faster with AMSCO's method of tube-rod welding.

Hardfacing the side of a backhoe bucket with AMSCO Tube Rod. Note ease of use for vertical welding in tight quarters.

Amsco Welding Products distributed in Canada by Canadian Liquid Air Co., Ltd.

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American Manganese Steel Division • Chicago Heights, Ill.

OTHER PLANTS IN: DENVER, LOS ANGELES, NEW CASTLE, DEL., OAKLAND, CAL., ST. LOUIS, JOLIETTE, QUEBEC

Continued from page 21

What Arbitrator Carroll R. Daugherty Ruled: "The company, by its right to set job standards, also has a right to determine whether a worker is capable of physically performing a job. It is also within the bounds of managerial discretion to set up a line of demarcation between a safe and unsafe employe, provided it exercises its authority in a non-discriminatory fashion. The Arbitrator cannot prohibit or modify the right of a company to discharge an employe if the management has determined the employe to be unsafe; i.e., prone to accidents endangering his own welfare and/or that of other employes. Grievance denied."

IS DISCHARGE TOO SEVERE a penalty for sleeping on the job?

What Happened:

Louis Hosler did not deny that he was sleeping. He was found in that condition by the plant manager who had to shake him vigorously to get Louis to wake up. When he was fired, Hosler put up a wide-awake defense:

1. No one in the company had ever been fired for sleeping.
2. A man should be given "gradual discipline" — not discharged right off.
3. Nothing serious happened while he was asleep.

These arguments didn't catch the company dozing. It said:

1. Hosler was an engineer, and he had to stay awake to check on the pressure of boilers. If he didn't do his job well, lives and property could be jeopardized.
2. In a job like Hosler's, sleeping is so serious that he should *not* be given a second chance.

What Arbitrator Paul L. Styles Ruled:

"A worker might be given a second chance if, while he slept, none of his assigned duties were neglected. While Hosler slept, his duties, which consisted largely of being awake, were neglected. Just as a bartender must be a sober man, and a judge an honest one, an engineer and watchman must be a wide-awake man. Discharge sustained."

CAN MANAGEMENT DEMOTE a worker and turn his duties over to a foreman?

What Happened:

The company maintained a small janitorial staff of five to seven employes on the day shift and about the same on the night shift. Each group was supervised by a leadman who did the same work as the other employes but exercised some minor overseeing. The leadman on each shift was a member of the union.

After the company had received a number of complaints about poor janitor service, it determined to do something. Upon investigation, it found that the janitorial group had very little supervision. The maintenance foreman, who was supposed to have overall supervision, was too busy with other duties, thus leaving the leadman in control.

The company decided to reorganize the janitorial service. It created a new job, "Custodian Foreman," which was outside the bargaining unit. In view of the fact that the foreman was to take over active supervision, the job of leadman was eliminated and the incumbents demoted to "janitor" with a pay cut from $1.50 an hour to $1.44.

The union put in a grievance. It admitted that management had a right to eliminate a job, but it couldn't assign the duties to a supervisor. The new foremen, the union said, had taken over many of the functions of a leadman, and management had no right to do that.

The company argued:

1. We didn't eliminate a job at all. We created a new job of "custodian foreman."
2. The staff isn't big enough to have a leadman *and* a foreman.
3. The new foremen are not doing the work of regular employes.

What a Board of Arbitration, Edgar L. Warren, chairman, ruled: "Any encroachment on the job territory of the union, no matter how well intentioned, would be a potential threat to the union's security. However, the determination of the kind and amount of supervision required to assure adequate performance of a work force is clearly the function of management. The leadmen spent only a very small proportion of their time in supervision. The new foremen spend all their time in supervision. They lay out the work, prepare instructions, keep records and supplies, hire, discipline and discharge. None of these functions were performed by the leadmen, so it cannot be said that the foremen's jobs were created from duties formerly carried out by leadmen. Grievance denied."

New 900 cfm AIRVANE Rotary

Here's a 900 cfm portable compressor that is only 12 feet long—that has a 14'10" turning radius—that is ruggedly built of high-strength steel—yet weighs as much as 3700 pounds less than other 900 cfm portables.

The new Joy 900 cfm AIRVANE rotary tows and maneuvers like ordinary 600 ft. machines, yet packs enough punch to power three heavy wagon drills . . . or seven light wagon drills . . . or ten hand-held drills.

EXCLUSIVE AIRVANE FEATURES:

THERMAL BY-PASS—an oil circulating system that provides immediate lubrication and temperature control under all weather conditions.

SPLINE COUPLING—does away with a clutch for more efficient power transmission.

Consult a Joy Engineer

for AIR COMPRESSORS • ROCK DRILLS • WAGON DRILLS CORE DRILLS • BLAST HOLE DRILLS PORTABLE HOISTS • FANS • BLOWERS • TUNNEL, QUARRY, MINE EQUIPMENT

If a 900 ft. portable is in your plans to push along a tough job, better look at the latest—then put a JOY on the job.

Write today for full information. ***Joy Manufacturing Company, Oliver Building, Pittsburgh 22, Pa.*** In Canada: *Joy Manufacturing Company (Canada) Limited, Galt, Ontario.*

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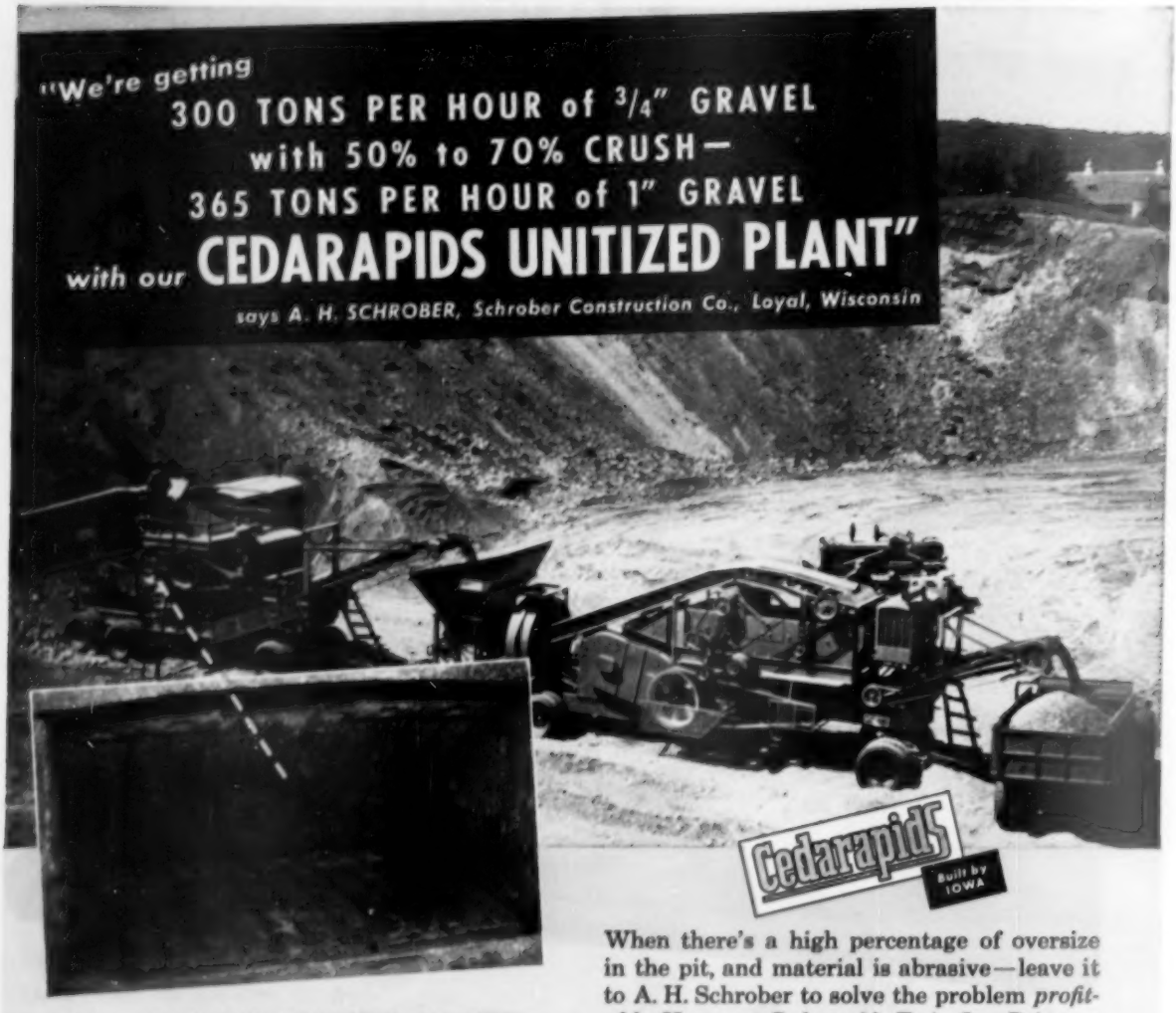
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300 TONS PER HOUR of 3/4" GRAVEL
with 50% to 70% CRUSH—
365 TONS PER HOUR of 1" GRAVEL
with our CEDARAPIDS UNITIZED PLANT"
says A. H. SCHROBER, Schrober Construction Co., Loyal, Wisconsin
Cedarapids
Built by IOWA

900,000 TONS OF GRAVEL HAVE GONE THROUGH THIS CRUSHER

. . . and there's still plenty of life left in the jaws! It's no wonder A. H. (Tony) Schrober says "There's nothing like the jaw life of our Twin Jaw Primary. We turned the jaws at 525,000 tons and when this picture was taken, over 900,000 tons had gone through. The ribs still protruding indicate there's still a lot of service left in these jaws, and we expect to go over a million tons easily before replacement."

Production is another reason Tony Schrober is well pleased with his Cedarapids equipment. This Unitized Plant is turning out 300 tons per hour of ¾" gravel, with 50% to 70% crush, and 365 tons per hour of 1" gravel. That's a good reason why he has taken delivery on another Cedarapids plant.

When there's a high percentage of oversize in the pit, and material is abrasive—leave it to A. H. Schrober to solve the problem *profitably.* He uses a Cedarapids Twin Jaw Primary Unit to handle the 50% to 70% crushing and get increased capacity . . . and to sharply reduce abrasive wear on the jaws. For secondary reduction and gradation he uses a Cedarapids 4024 Roll Crusher Secondary. It's the perfect combination for the performance Mr. Schrober likes . . . output of 2700 to 3300 tons per day in tough crushing conditions, steady operations day after day, and low maintenance costs.

Your Cedarapids distributor can help you choose the aggregate producing or bituminous mixing plant which will meet your requirements for capacity, specifications and low cost.

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PEOPLE
IN THE NEWS

William H. Wilson

Heads Virginia-Carolina

WILLIAM H. WILSON has been named president of the Virginia-Carolina Chemical Corp., Richmond, Va. He succeeds William C. Franklin, who has been serving as acting president since a change in management control two months ago. Mr. Franklin becomes board chairman replacing former Gov. John S. Battle who will continue to serve as a member of the board of directors. A native of Saginaw, Mich., and a graduate of the University of Michigan, Ann Arbor, Mich., Mr. Wilson has been executive vice-president of the Standard Fruit and Steamship Co.

Production Superintendent

DR. J. D. CLARY has been appointed production superintendent of the Florida phosphate division of the Davison Chemical Co., Baltimore, Md. Formerly assistant works manager at Curtis Bay, Baltimore, he has been associated with the firm since 1951. William R. Fort is manager of the phosphate rock division.

Rejoins Concrete Firm

JOE J. SHADDEN has returned to active participation in the operation and management of Hulsey Concrete Products, Inc., Chattanooga, Tenn. Vice-president and a director of the company since 1945, he has been living in Florida for the past few years. He is a native of Chattanooga and a graduate of the University of Chattanooga.

District Engineer

ELLIS G. WILLIAMS, formerly research engineer with the Kentucky Department of Highways, has been appointed district engineer in the Louisville, Ky., office of The Asphalt Institute, College Park, Md. Fred N. Finn, district engineer in the Sacramento, Calif., office, has been assigned as research engineer on the AASHO test road project in Illinois.

Production Manager

T. L. PLAKE has been appointed production manager for the Transit Mix Concrete and Foundation Co., Beaumont, Texas. Formerly general superintendent for the Lone Star Construction Co., Mr. Plake attended Lamar College of Beaumont and McNeese College of Lake Charles, Texas.

Basalt Assistant Manager

JAMES TOBIN, plant manager at the Vallejo, Calif., plant of Basalt Rock Co., Napa, Calif., has been promoted to assistant manager of the structural concrete products division. Harold Price is manager of the division. Born in Vallejo, Calif., Mr. Tobin is a graduate of Healds Engineering College. He has been associated with the company for the past six years.

Executive Vice-President

WILLIAM SMITH ZIEGLER has been appointed executive vice-president of Inland Cement Co., Montreal, Canada. He was formerly assistant vice-president of the Canadian National Railways, Montreal.

General Sales Manager

CLARENCE F. THORFINNSON has been named general sales manager of Baukol-Noona, Inc., Grand Forks, N.D., producers of lightweight aggregates. Associated with the firm for the past six years, Mr. Thorfinnson will serve North Dakota and western Minnesota.

Becomes Partner

LLOYD L. SHANK has purchased a half-interest in the Maurer Cement Products Co., Goshen, Ind., according to an announcement by DeVon Maurer, who has operated the concrete burial vault plant since 1932. Mr. Shank has been Mr. Maurer's assistant for the past three years. The firm will continue to operate under the name of the Maurer Cement Products Co.

Leslie S. Voltz

Director of Safety

LESLIE S. VOLTZ has been appointed director of safety for Consumers Co., Chicago, Ill. William E. Jagen has been named his assistant. Mr. Voltz, an engineer and a native of Chicago, has long been associated with mining operations, safety controls and mine rescue work. He formerly served in this connection with Peabody Coal Co. and Franklin County Coal Corp. In his new position Mr. Voltz will inspect all mechanical operations at quarries, pits and local yards, instruct superintendents, foremen and plant managers in accident prevention, and install safety methods and devices where needed.

District Manager

FRANK J. NUNAN has been appointed Virginia district manager for the United States Gypsum Co., Chicago, Ill., with headquarters in Richmond, Va. He was formerly a salesman in the Philadelphia office. A. V. Abnee has been named field research manager in the market research department.

(Continued on page 30)

In place of wasteful and uncertain crankcase-oil changing based upon mileage or hours in service, many operators of heavy-duty construction equipment now use a better guide that saves them both time and money.

Now you can test used oil in minutes

IT HAS COME as something of a surprise to some maintenance men to discover that they have been throwing away hundreds of gallons of still-good oil . . . year after year. Conversely, it is quite a jolt to realize that a costly engine-repair job could have been prevented by an on-the-spot analysis that would have shown up the condition . . . in minutes!

The recommendations for oil changes issued by engine makers have always been computed on "averages" for the various classes of vehicle service. And like the "average" man on the insurance chart, the average vehicle doesn't exist in the actual fleet. For example, two bulldozers of the same make and model, operating on the same job, can have quite different patterns of oil economy and engine condition. Obviously no one set of rules can apply ideally to all units. And fortunately there is no longer any need for such generalization.

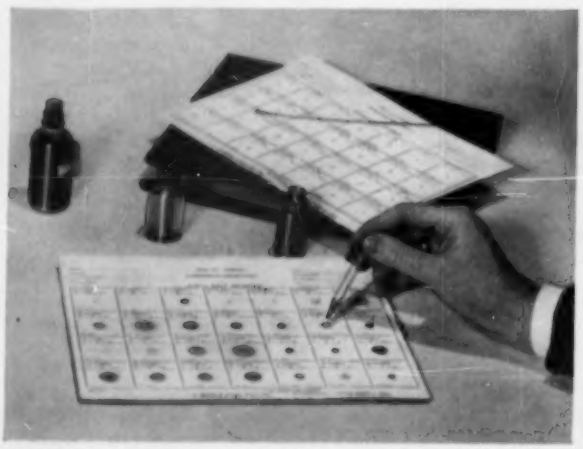
From a couple of drops of used oil, the Shell "ADC* Oilprint Analysis" provides a reliable check of oil condition, in minutes. It is very simple, and with a little practice, it tells you a lot about that oil and the engine that uses it.

What a drop of used oil shows: You place a drop of used oil on a piece of special filter paper supplied by Shell . . . let it stand a minute or two. You will then be able to *see* the following:

Water dilution: Even a tiny amount of water shows up . . . and that means not only that your oil is losing its ability to protect engine parts, but it also shows whether the water represents a normal amount of condensation or something more serious, such as an actual leakage of coolant from a faulty jacket.

Dispersancy/detergency: The same oil drop will give you a picture of how well the special additives in the oil are doing their job . . . whether or not the contaminants are being held in suspension where they do least harm . . . whether the cleansing and dispersing actions are adequate . . . whether the oil is still good.

Adulteration: The color of the oil spot will show whether too much contamination is occurring . . . and will very often point up the cause, indicating a check on



The simple test setup: sample bottles, a wire rod, a bottle of "indicator," and the permanent record card.

This single, on-the-spot sample reveals many things about an engine.

A fleet superintendent sees how easily the test is made.

injectors, nozzles, oil and air filters of diesels, or on plugs, carburetors and filters of gasoline engines.

All of the above can be learned from the single drop of oil . . . in an amazingly short time.

Alkalinity: Engine wear and engine deposits increase as the oil becomes acidic in nature due to contamination from combustion products. A special indicating fluid, developed in Shell Laboratories, tells at a glance whether oil is alkaline and still usable, or acid *and how much.*

Operators who keep an ADC Oilprint Analysis record of each vehicle generally find that the crankcase oil stands up longer than they had figured . . . a distinct saving in lubrication cost. At the same time, there is a running check on each engine that often detects impending trouble before its correction becomes costly. In this respect, the Shell ADC Oilprint Analysis qualifies definitely as one of the valuable recent tools of preventive maintenance.

If you are concerned with extending the service of crankcase oil, and with avoiding the risk of using oils loaded with contaminants, we suggest that you have one of the Shell service engineers demonstrate ADC Oilprint Analysis for you.

*Trademark

Photo shows an oil-spot test card...one phase in the visual life record of a charge of oil.

The Shell "indicator" shows acidity instantly. If spot turns red, oil is no longer fit to use, should be changed quickly.

SHELL OIL COMPANY

50 WEST 50TH STREET, NEW YORK 20, NEW YORK
100 BUSH STREET, SAN FRANCISCO 6, CALIFORNIA

SHELL

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Left to right: Wm. Wallace Mein, Jr., Al Maier, A. L. Sundell and Mel J. London

Calaveras Veterans Retire

WM. WALLACE MEIN, JR., president of Calaveras Cement Co., San Francisco, Calif., and Mel J. London, vice-president, recently presented gold watches to Al Maier and A. L. Sundell, sales representatives, upon their retirement from the firm. Mr. Maier joined Calaveras in 1934 as salesman in the San Jose territory, transferring in 1941 to Oakland. Mr. Sundell became associated with the company in 1935, serving as north coast sales representative except for the four years he was assigned to duties at the San Andreas plant.

Sales Manager

KENNETH L. HAMMOND has been appointed sales manager of the Alabaster Lime Co., Alabaster, Ala., which is owned and operated by George L. Scott, Sr., George L. Scott, Jr., and Albert L. Scott. Mr. Hammond was secretary-treasurer of the Keystone Lime Works, Inc., Keystone, Ala., for many years prior to recent purchase by Southern Cement Co., Birmingham, Ala., now a branch of American-Marietta Co., Chicago, Ill. Mr. Hammond is a past-president, life-time director and member of the executive committee of the National Lime Association.

C.M.A. Committee Chairmen

PETE MUTH, Orco Block Co., Hollywood, Calif., newly elected president of the Concrete Masonry Association, succeeding Lyman Chaffee, O'Kelley-Eccles Co., has appointed the following committee chairmen: Jay Lyon, General Concrete Products Co., Van Nuys, public relations committee; Lyman Chaffee, O'Kelley-Eccles Co., Baldwin Park, technical committee; E. P. Ripley, General Concrete Products Co., educational and employe relations committees; W. A. Chaffee, O'Kelley-Eccles Co., union negotiating committee; and Arvid Johnson, Orco Block Co., Stanton, membership committee.

Association President

J. FORSCHT, Altoona, Penn., has been elected president of the Pennsylvania Concrete Burial Vault Association. He succeeds Irvin E. Brouse, Ringtown. Other officers are James Willard, Pulaski, vice-president; John F. Kizer, Jr., Scranton, secretary-treasurer; Quinton Fike, Cumberland, Md.; William Schultz, Nescopeck; and Wilbur R. Mauger, Kennett Square; directors.

Joins Goff-Kirby

RICHARD F. GARMAN has been appointed sales manager of the Goff-Kirby Co., Cleveland, Ohio, according to an announcement by E. M. Harper, president. A graduate of Case Institute of Technology, Cleveland, with an M.S. degree in civil engineering, Mr. Garman was formerly associated with Metropolitan Brick, Inc., Canton, and the New York Coal Sales Co., Columbus.

Dragon Appointments

WILLIAM T. BARRON has been appointed superintendent at the Northampton, Penn., plant of Dragon Cement Co., Inc., New York, N.Y. Frank J. Anderson has been named assistant plant manager; Eugene Milham, chief chemist; and Thomas J. Hynes, construction engineer.

On P. C. A. Board

GORDON TONGUE, president, Northwestern Portland Cement Co., Seattle, Wash., has been elected to the board of directors of the Portland Cement Association, Chicago, Ill.

Assistant Sales Manager

WILLIAM W. BURNHAM has been appointed assistant sales manager of the Philadelphia, Penn., sales territory of Universal Atlas Cement Co., New York, N. Y. A native of Kansas City, Mo., Mr. Burnham attended State Teachers College, Warrensburg, Mo., and University of Notre Dame. He has been associated with the company since 1947.

Zonolite District Manager

EMRYS L. WILLIAMS has been appointed district manager of the Zonolite Co., Chicago, Ill., miners and manufacturers of vermiculite. He will have charge of sales in Michigan and northern Ohio. Mr. Williams joined the firm in 1950 and has served as architectural representative in Cleveland and Detroit. He holds a B.S. degree from the Light Construction School at the University of Wisconsin, Madison, Wis. Kenneth A. Oretgren, Robert Asher and Guiles E. Maxwell, Jr., have been named sales representatives in southern Illinois, central Missouri and Birmingham, Ala., respectively.

Alpha Sales Manager

H. EUGENE BROWN has been appointed southern sales manager of Alpha Portland Cement Co., Easton, Penn., to succeed Charles P. Postelle, who has retired. Mr. Brown joined the company in 1924 and served as sales representative and assistant district manager in the Ohio, West Virginia, Kentucky territory prior to his present appointment. Mr. Postelle, formerly with the Phoenix Portland Cement Co., had served in this position since 1928 at which time Alpha purchased the company.

General Traffic Manager

R. A. MORIN has been appointed general traffic manager of United States Gypsum Co., Chicago, Ill. Formerly assistant general traffic manager, he succeeds R. C. Berrey, who has been named vice-president in charge of traffic.

Association Speaker

EARL W. PETERSON, Ideal Cement Stone Co., Omaha, Nebr., and president of the National Concrete Masonry Association, was principal speaker at the recent meeting of the Kansas Concrete Masonry Association. B. F. Park, general sales manager, Buildex, Inc., Ottawa, Kan., was host for Buildex, Inc., and James C. Hammel, Clay Center Concrete and Sand Co., Clay

(Continued on page 33)

THIS OPERATOR...

at WENDLING ROCK & LIME QUARRIES

has a big advantage with LORAIN 2-Lever, "JOY-STICK, Metered-Air" Control

Working at Moscow, Iowa, this 1-yd. Lorain-50 Shovel is digging and loading up to 1700 yds. of limestone per day, working against a 20-ft. face.

The "face" you can't see too well is that of the operator. But he's happy with the operating ease of the new Lorain 2-lever, "Joy-Stick, Metered-Air" Controls that take away the time-consuming work and fatigue of manipulating a whole bank of manual levers for clutch operations. Yet, he has normal full "feel" of the clutches at all times. The boss is happy, too, with the production step-up and the way Lorain air-operation performs in tough digging. This is Wendling's second Lorain.

Investigate this revolutionary new method of shovel control. It is a feature you'll want on your next shovel. Your Thew-Lorain Distributor has the facts!

2 LEVERS DO ALL THIS . . .

LEFT LEVER *controls (1) swing right or left, (2) boom raising or lowering or combinations of 1 and 2.*

RIGHT LEVER *controls (1) main hoist, (2) secondary hoist, (3) shovel crowd, (4) shovel retract, (5) clam holding, (6) dragline or hoe drag-in. By "quartering" the levers, combinations of the above operations can be obtained.*

THE THEW SHOVEL CO.
LORAIN, OHIO

THEW **LORAIN**

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● Converting the raw building products provided by Nature into the rugged and beautiful works of man requires both vision and skill. It also requires *fuel*—the unseen factor behind every towering structure. Selecting the *right* fuel is important.

Along the Baltimore & Ohio are vast deposits of bituminous coal with structure and volatility ideal for producing cement, lime, and brick. Modern mechanization and the easy accessibility of the mines keeps production and transportation costs low. And because coal can be stored anywhere, the need for expensive facilities is eliminated.

We will be glad to advise you on the right kind of coal for your specific need, show you where to find it, and how to burn it. The modern efficiency, economy, and cleanliness of Bituminous will amaze you. *Ask our man!*

BITUMINOUS COALS
FOR EVERY PURPOSE

BALTIMORE & OHIO RAILROAD

Constantly *doing things*—**better!**

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Center, Kan., presided. Mr. Hammel is president of the Kansas Concrete Masonry Association.

Emil J. Bonkoff

Joins Engineering Firm

EMIL J. BONKOFF has joined the consulting mining engineering firm of Larry F. Labow, Toronto, Canada. He was formerly with the Department of Trade and Commerce, Ottawa, where he was responsible for the development and promotion of trade in industrial minerals and products. Mr. Bonkoff received his degree in geology from McMaster University, Hamilton, Canada.

Sales Manager

JOSEPH A. DOOLEY has been elected sales manager of New York Trap Rock Corp., New York, N.Y., according to an announcement by Wilson P. Foss, Jr., chairman of the board. Mr. Dooley, who joined the company in 1947, has been assistant sales manager since 1953. Born in Brooklyn, he attended the University of Dayton, Ohio. His father, Joseph C. Dooley, was vice-president in charge of sales for New York Trap Rock Corp. for many years before his death in 1949.

St. Lawrence Sales Manager

JAMES D. TWEEDY has been appointed Ontario sales manager for St. Lawrence Cement Co., Clarkson, Ontario, Canada.

Rotary Club President

WALTER C. COUPLAND, secretary-treasurer of the Argo Block Co., Ltd., Cooksville, Ontario, Canada, has been elected president of the Cooksville Rotary Club. A former president of the National Concrete Products Association in Canada, Mr. Coupland is the only Canadian director of the National Concrete Masonry Association, Chicago, Ill.

Assistant Sales Manager

CHARLES E. WATSON has been appointed assistant district sales manager in Seattle, Wash., for the Kaiser Gypsum Co., Oakland, Calif. Formerly a special salesman for Kaiser in southern California, Mr. Watson had seven years' experience in the building materials field before joining the company in 1952 as a territory salesman.

Hiram College Trustee

FRANK B. WARREN, president and director of The Bessemer Limestone and Cement Co., Youngstown, Ohio, has been elected a trustee of Hiram College, Hiram, Ohio. A graduate of the University of Illinois, Urbana, Ill., with a B.S. degree in civil engineering, Mr. Warren is also a director of the Mahoning National Bank and the Home Savings and Loan Co. in Youngstown.

Named Vice-President

CHARLES Z. MCGINLEY has been named vice-president of Corson Concrete Co., subsidiary of G. & W. H. Corson, Inc., Plymouth Meeting, Penn.

OBITUARIES

STUART H. RALPH, vice president and director of The Flintkote Co., New York, N.Y., died September 6 at the age of 63. Born in Oil City, Penn., Mr. Ralph attended Boston University. He joined the company in 1920 as assistant to the general sales manager, later serving as eastern sales manager until he became general sales manager in 1928. He was elected vice-president in charge of building material sales in 1933 and became a director in 1944. Mr. Ralph was past president of the Asbestos-Cement Products Association, Insulation Board Institute and Insulating Siding Association.

CHESTER NELSON REITZE, retired president of Superior Portland Cement, Inc., Seattle, Wash., died August 25 after a short illness. He was 73 years old. Born in Seattle, Mr. Reitze was graduated from Cornell University, Ithaca, N.Y., as a civil engineer. He started his business career as a partner in the engineering firm of Reitze, Storey & Duffy. He was Pacific Coast manager for the Portland Cement Association from 1915 to 1925, when he joined Superior Portland Cement, Inc., as an engineer. He became president in 1947 and retired in 1955, but remained on the board of directors.

HARVEY M. HANAWALT, founder and president of Hanawalt's, sand and gravel and ready-mixed concrete firm of Pomona, Calif., died August 31. He was 76 years of age. Born in Johnstown, Penn., Mr. Hanawalt moved to California in 1902. He and his brother, Samuel E. Hanawalt, who died in 1947, started the sand and gravel business in 1922 and subsequently added the ready-mixed concrete plant. His sons, Robert M. Hanawalt, who is vice-president and general manager, and N. Ward Hanawalt, who is construction superintendent, will carry on the business.

EDWARD S. GUBERNATOR, retired general traffic manager of the Lehigh Portland Cement Co., Allentown, Penn., died August 27. He was 78 years old and had been ill for the past year. Born in Mt. Pleasant Township, Adams County, Penn., Mr. Gubernator attended St. Louis University. He joined the company in 1927 as traffic manager in Chicago, and was appointed general traffic manager in Allentown in 1937. He retired in 1948.

JESSE G. RAY, president, Independent Limestone Co., Bloomington, Ind., died September 6. He was 83 years of age. A native of Lawrence County, Ind., Mr. Ray had been in the limestone business for nearly 50 years, and president of the firm since 1927. He was a member of the Indiana Limestone Institute.

WILLIAM S. BRYAN, retired superintendent of the Bainbridge, Penn., quarry of the J. E. Baker Co., York, Penn., died August 13 following an illness of several months. He was 72 years old and had been associated with the firm for more than 40 years.

LEWIS D. AYLES, former superintendent of the Claremont, Calif., plant of Consolidated Rock Products Co., Los Angeles, Calif., died September 1 following a long illness. He was 66 years old.

CLEMENT J. PIERSON, president of the Pierson Brothers Sand Co., Milwaukee, Wis., died September 27 following a short illness. He was 55 years old.

GEORGE M. DUKE, retired engineer for the Nugent Sand Co., Louisville, Ky., died August 13 at the age of 81.

Tried one, bought five...

Lambert Brothers quarries report Michigan Model 175A "Well worth your test"

Next time you're in the market for a Tractor Shovel, we'd like permission to demonstrate a Michigan *at our expense* in your pit. We think the results will convince you that Michigan is your "best buy" . . . just like it convinced Lambert Brothers, Knoxville, Tennessee, one of whose *five Michigans* is shown above.

Lambert, one of the largest crushed stone producers in the country, used to load trucks at five of their Tennessee and Georgia quarries with crawler-shovels and portable conveyors. As road work increased demands for their ¼" to 2½" stone, these methods became too slow . . . and, as labor costs soared, too expensive. Partner Walter Lambert and his Knoxville quarry superintendent, Lawson Tice, carefully studied all the newest methods . . . then called for a Tractor Shovel demonstration. Michigan won, hands down! A 2¼ yard Model 175A outproduced the *next best* loader, 2½-to-1! Its efficient power train and smooth-operating bucket heaped loose stockpiled stone in one quick pass . . . the other machines had to work in and out several times to get a similar load.

Loads 100 tons hourly

That happened about a year ago. Today, Lambert has *five* Michigans. These handle all truck-loading at company-affiliated quarries in Knoxville, Nashville, Rockwood and Maryville, Tennessee, and in Kennesaw, Georgia. Their Knoxville unit, pictured here, averages 800 tons per 8-hour day. Its 27 mph speed hustles it 450 ft or more between the nine stockpiles as needed . . . also enables it to quickly handle such rush "odd jobs" as cleaning spill-

age from the hopper and towing the air compressor.

If this kind of high-speed cost-cutting looks like it can help you, may we suggest you re-analyze your needs soon! And when you do, take it from Mr. Lambert: "We tried 'em all," he says, "and we *know* that Michigan Tractor Shovels are best for quarries!" There's a size and drive to fit your needs . . . 1 to 2¼ cubic yards.

CLARK EQUIPMENT COMPANY
Construction Machinery Division
2481 Pipestone Road
Benton Harbor 31, Michigan
Michigan is a registered trade mark of

CLARK® EQUIPMENT

To load 5 or 6 yard truck with 10 tons of stone takes the Michigan 175A only 3 passes. For loading sideboarded 16 to 18 yard 25 ton trucks, Michigan's 11 foot dumping height is especially valuable.

"**The best Tractor Shovel I ever drove,**" says Operator Jim Pitts of the Michigan. "I like its non-stop no-clutch shift, the automatic bucket tip-back, and the ease with which it digs out the stone."

FULL POWER, dependable performance from a cleaner, better-lubricated engine – these are the benefits enjoyed by all who use world-famous *Texaco Ursa Oil Heavy Duty*.

Texaco Ursa Oil Heavy Duty will safeguard vital parts against wear and corrosion, prevent harmful deposits, keep rings and valves free, assuring full compression and complete combustion. You'll get *more power* with *less fuel* over *longer periods* between overhauls.

Texaco Ursa Oil Heavy Duty is one of a complete line of *Texaco Ursa Oils* to meet the requirements of all diesel and heavy duty gasoline engines.

In hydraulic mechanisms, *Texaco Regal Oil R&O* prevents rust, sludge and foam, assures smoother operation and low maintenance costs.

For wire rope and open gear lubrication, use *Texaco Crater* or easily applied *Texaco Crater X Fluid*. They keep rope strong longer, greatly extend gear life.

Effective lubrication can step up efficiency in every phase of your operation. Ask a Texaco Lubrication Engineer for full details. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO

TEXACO Lubricants and Fuels
FOR ALL CONTRACTORS' EQUIPMENT

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INDUSTRY NEWS

Cover Picture

THIS MONTH'S COVER ILLUSTRATION is a scene in the Johns-Manville quarry at Lompoc, Calif., showing 4½ cu. yd. P & H electric shovel loading diatomite into a 22½-cu. yd. Euclid truck. This is believed to be the largest and purest diatomite deposit in the world. The raw material is processed in a new plant into synthetic silicates. The silicates are manufactured directly from processed diatomite reacted with lime under high temperatures and pressures. The quarry has been in operation since 1928. Finished products, called Micro-Cel, are used as dry cleaning sweeteners, inert absorbents, bulking agents, and extenders in paint, rubber, paper, insecticides, and fertilizers.

New Peerless Plant Open

PEERLESS CEMENT CORP., Detroit, Mich., has begun production at its new plant on the main channel of the River Rouge, near Detroit. The $7 million plant has an annual capacity of 1,250,000 bbl., which, combined with the output of the two other Peerless plants, will boost the company's production to 6,500,000 bbl. per year.

An 11½ - x 425-ft. rotary kiln is the main piece of automatic and semi-automatic equipment at the plant, which is almost a pushbutton operation, requiring a minimum of labor. In addition to portland cement, the plant will produce blast furnace slag portland cement, according to Walter C. Russell, president.

Construction activity at the Port Huron plant of Peerless Cement Corp. involved the installation of electronic dust-collecting equipment.

Slag Firm In Merger

BIRMINGHAM SLAG CO., Birmingham, Ala., and Vulcan Detinning Co., Sewaren, N.J., are merging, according to an announcement by C. W. Ireland, president, Birmingham Slag, and Alfred C. Buttfield, president of Vulcan.

The ownership of two other allied companies in which Birmingham Slag now has an interest, Stockbridge Stone Co. and Southern CEN-VI-RO Pipe Corp., will be acquired through an exchange of stock.

Lambert Bros., Inc., Knoxville, Tenn., co-owner of Stockbridge Stone Co. with Birmingham Slag, will receive 87,000 shares of 5 percent cumulative preferred stock of the new company and 63,000 common shares.

Each Vulcan common shareholder will receive 1⅛ shares of new common stock and one share of the new preferred for each share held. Each of Birmingham Slag's 2,059,040 common shares will receive 0.98 shares of the new common stock.

Permanente's New Cement Plant

PERMANENTE CEMENT CO., Oakland, Calif., is completing construction of its cement plant near Victorville, Calif., which will serve the southern California market. The $13 million dollar plant will have an annual capacity of 2,500,000 bbl., and will operate wet.

Principal equipment at the plant are two F. L. Smidth & Co. gas-fired rotary kilns. The 12- x 448-ft. kilns are equipped with 8- x 44-ft. Fuller coolers, Cottrell electrical precipitators and Buell dust collectors.

Chemical Lime Builds Plant

CHEMICAL LIME CO., Portland, Ore., is nearing completion of its plant near Baker, Ore., and production may begin by the first of the year. The annual initial capacity of the plant will be 75,000 tons of chemical grade lime.

One kiln has been installed and a second soon will be added. The plant will draw upon a deposit indicated to contain more than 30,000,000 tons of high grade limestone, high in calcium and low in silica, iron and phosphorous. A dry ice plant included in the project will utilize CO_2.

The plant, located 8 miles from the quarry, will have a production of more than 200-t.p.h. of limestone. Stockpiling facilities and reclaiming tunnels have been constructed to provide for storage of 250,000 tons of lime.

According to Anthony Brandenthaler of Chemical Lime Co., Robert G. Vervaeke will be general manager of the Baker plant. Mr. Vervaeke was formerly associated with U. S. Gypsum Co. and with Gladding McBean Co.

Columbia Expansion

PITTSBURGH PLATE GLASS CO.'s Columbia Cement plant, East Fultonham, Ohio, has completed an expansion program including the addition of a 12- x 450-ft. kiln and a single-compartment ball mill. Electronically-op-

(Continued on page 41)

Scale model of Permanente's new southern California plant

Lined . . . and relined with Lorain . . .

Primary clinker mill grinds 37,873,000 bbls. of feed efficiently and economically

At Hudson, New York, the Universal Atlas Cement Company has been using USS Lorain Rolled Steel Plate Linings in its grinding mills since 1938. One 10′ - 6″ x 12′ Preliminator alone has ground 37,873,000 barrels of clinker up to February 13, 1956, consuming only two sets of linings and lift bars.

The first lining in this mill was made of 2″ liner plates and lift bars, Section M-3714, designed to permit replacement of bars during life of the lining. In grinding the 38 million barrels of clinker, one lining and one set of renewal bars were completely worn out. But despite the tremendous tonnage processed, the second lining installed was still in serviceable condition when the mill went down for general repairs in February.

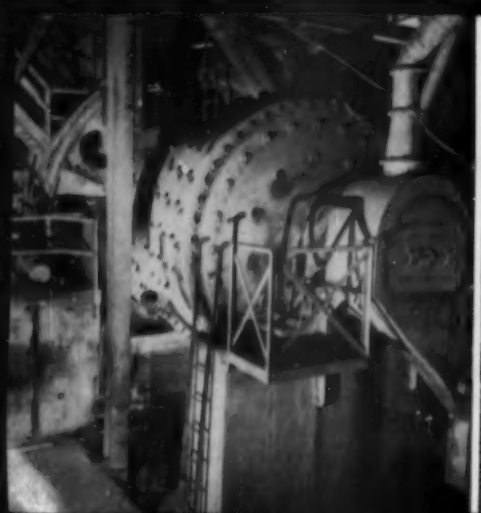
HEAVIER-DUTY LINING—The performance of the original Lorain linings was so impressive that management at Universal Atlas decided to install the latest type Lorain lining with deep recessed liner plates and extra-heavy lift bars, Section M-4497, to further increase the mill's grinding efficiency and to eliminate the need for replacing lift bars. The new type lining was installed during the repair period in February so production would not be interrupted during the peak season this summer. Frankly, no shutdown due to lining problems is expected for the next several years.

LONGER LIFE . . . CONSTANT LIFT—USS Lorain Rolled Plate Linings are made of tough, rolled steel that means longer grinding life. Lift bars are rolled alloy steel, heat treated to obtain a hardness differential that will maintain lift height throughout life of the lining, thus providing maximum grinding efficiency. Each Lorain Lining is tailor-made to fit a particular mill. The linings fit snugly—shell wash is eliminated. Mr. A. E. Glasspool, Maintenance Supervisor at Hudson, said "Lorain Linings are designed right and they fit tight. Each piece was properly marked, so we had no trouble with installation."

These heavy-duty linings installed by Universal Atlas will provide effective grinding action without fear of broken bolts, cracked plates or bars, and will continue to perform efficiently until the plates wear paper-thin.

WE'RE GLAD TO HELP—If you are not aware of the merits of USS Lorain Rolled Plate Linings and are not using them—if you are experiencing lining difficulties of any nature, we will be glad to have a sales representative call on you. Just write to: United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.

This 10′-6″ x 12′ Preliminator mill in Universal Atlas Cement's Hudson, New York, plant has ground 37,873,000 bbls. of clinker at a rate of 360 bbls. per hour.



The specially designed bolts will hold the Lorain Lining snug and tight for the life of the lining without fear of breaking. Lorain Linings are made of tough, rolled steel that is tailor-made to accurate shapes.

Although there was still some life left in the old lining, management decided to install the heaviest-duty Lorain Rolled Plate Lining for even greater grinding efficiency, and to assure continuous operation for several years to come.

These new, heavy-duty lift bars, Section M-4497, and 2-inch-thick liner plates are expected to increase mill efficiency. This lining will retain lift for millions of tons. USS Lorain Rolled Plate Lining successfully grinds until plates are worn paper-thin. USS Lorain-designed special manholes and covers were also an unusual feature of this installation.

UNITED STATES STEEL CORPORATION, PITTSBURGH · COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS LORAIN ROLLED PLATE LININGS *and* USS GRINDING BALLS

UNITED STATES STEEL USS

Everything
UNDER CONTROL!

FROM TIMBERLANDS and paper mills to printing and sewing, every step in the production of Raymond Multiwalls is under the complete control of a wholly integrated organization.

Tailor-made from papers adapted to every need, including our own asphalt laminated, creped kraft, wet-strength, waterproof, colored kraft and many other laminates.

With the assurance of getting what you want when you want it.

Raymond
MULTIWALLS

RAYMOND BAG CORPORATION
Albemarle Division of PAPER MFG. COMPANY
Middletown, Ohio • Richmond, Va.

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erated, automatic proportioning feed is a feature of the closed-circuit grinding mill, which is powered by a 1250-hp. motor. The East Fultonham operation is changing from open pit to underground mining.

Portland Cement Production

THE PORTLAND CEMENT INDUSTRY produced 28,771,000 bbl. of finished cement during June, 1956, as reported by the Bureau of Mines. This was an increase of 8 percent over June, 1955. Mill shipments totaled 31,996,000 bbl., an increase of 2 percent, compared with June, 1955, while stocks on hand were 22,679,000 bbl., 20 percent more than on the same date a year ago. Clinker production during June, 1956, amounted to 27,053,000 bbl., an increase of 8 percent from the June, 1955 figure. The output of finished cement came from 158 plants in 37 states and Puerto Rico. During the same period of 1955, 26,762,000 bbl. of finished cement were produced.

Enlarge Asbestos Fiber Mill

JOHNS-MANVILLE CORP., New York, N.Y., will expand the new asbestos fiber mill at Asbestos, Que., Can., of Canadian Johns-Manville Co. The extension will add 75,000 sq. ft. of milling floor space as well as provide equipment for four additional primary milling lines. The present capacity of the mill, completed last spring, is 625,000 tons per year.

Another Johns-Manville announcement concerns the building of a Transite asbestos-cement pipe plant in Denison, Texas, the seventh plant to be operated by the company in the United States. Occupying 350,000-sq. ft., the plant will probably reach completion by the end of 1957.

Form New Mexico Cement Co.

NEW MEXICO PORTLAND CEMENT CO., Las Vegas, N.M., has been formed and has taken over an option on 1100 acres of limestone deposits, with the intention of building an $8 million cement plant in Gallinas Canyon, near Las Vegas. Preliminary engineering will be handled under direction of Kent B. Diehl, president of Texas Portland Cement Co., Orange, Tex.

If engineering shows the venture is warranted, plans are to build a plant capable of turning out 800,000 bbl. of cement per year, minimum. Heading the new firm as president is Elmer Kaemper, Las Vegas; Russ Stephens, Las Vegas, is vice-president; and M. E. Noble, Las Vegas, is secretary.

Flintkote Buys U. S. Lime, Expands In Other Fields

THE FLINTKOTE CO., East Rutherford, N.J., announced its entry into the lime industry by the acquisition of United States Lime Products Corp., Los Angeles, Calif. The acquisition has been arranged by the purchase of 98 percent of the stock of the corporation for cash. Minority stockholders will be offered the opportunity of selling their shares on a like basis.

Recent purchases bring to three the number of major acquisitions made by Flintkote in 1956. Earlier, Flintkote bought the Insulrock Co., Linden, N.J., manufacturer of a fire-resistant acoustical building material. In this area, Flintkote has recently announced plans for erection of a $1 million plant in North Judson, Ind.

(Continued on page 42)

Coming Conventions

November 12-19, 1956—
American Concrete Pressure Pipe Association, 8th Annual Convention, Castle Harbour Hotel, Tucker's Town, Bermuda.

November 14-16, 1956—
Southeastern Concrete Masonry Association, Annual Meeting, Eden Roc Hotel, Miami Beach, Fla.

November 26-27, 1956—
Wire Reinforcement Institute, Inc., Fall Meeting, Jung Hotel, New Orleans, La.

January 15-17, 1957—
National Crushed Stone Association, 40th Annual Convention, American Hotel, Miami Beach, Fla.

January 16-17, 1957—
Wisconsin Concrete Products Association, 36th Annual Convention, Plankinton Hotel, Milwaukee, Wis.

January 22-23, 1957—
National Agricultural Limestone Institute, 12th Annual Convention, Statler Hotel, Washington, D. C.

January 24, 1957—
National Crushed Limestone Institute, Annual Convention, Statler Hotel, Washington, D. C.

January 28-February 2, 1957—
American Road Builders' Association, Convention and Road Show, National Amphitheater, Chicago, Ill.

January 31-February 2, 1957—
National Bituminous Concrete Association, 2nd Annual Convention, Conrad Hilton Hotel, Chicago, Ill.

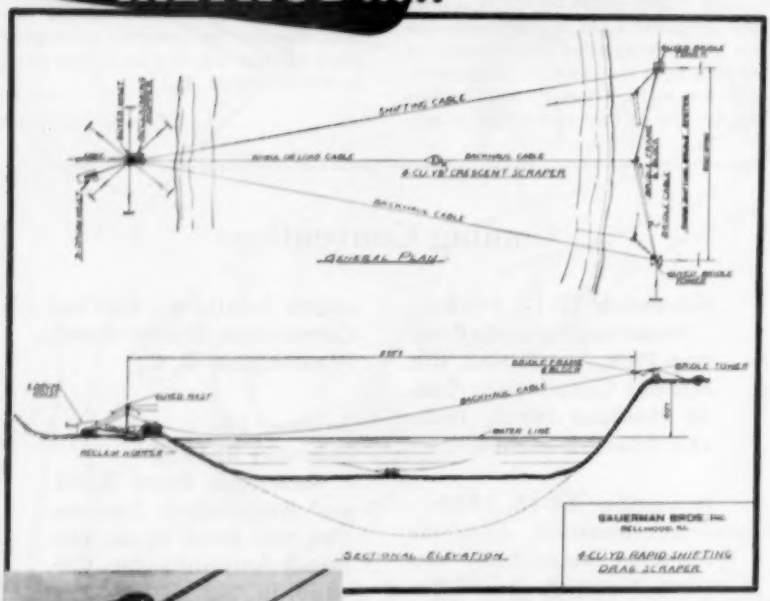
February 11-14, 1957—
National Sand and Gravel Association, 41st Annual Convention, Statler Hotel, Los Angeles, Calif.

February 11-14, 1957—
National Ready Mixed Concrete Association, 27th Annual Convention, Statler Hotel, Los Angeles, Calif.

February 25-28, 1957—
National Concrete Masonry Association, Annual Meeting and Exposition, Hotel Jefferson, St. Louis, Mo. Exhibit at Kiel Auditorium.

the SAUERMAN METHOD.....

Scraper Machines Engineered to Your Operation



Above drawing was prepared for a specific drag scraper installation and does not represent maximum spans.

View shows rapid shifting bridle frame and all operating cables. Crescent may be seen in background conveying load to reclaiming hopper just in front of mast.

•

Contact Sauerman's engineering department for specific recommendations and information. No obligation.

Ask for Catalog A, Drag Scrapers—24 pages of job photos and specifications. Request Field Reports showing your material being handled by the low cost Sauerman Method.

The Sauerman Method works equally well over widely differing areas and span limits . . . on hills, swampy ground or underwater . . . handles any material a dragline can dig.

Every scraper machine is powered by a Sauerman Roller Bearing Hoist, especially designed to withstand sudden shocks and changes in speed.

When a rapid shifter is used, a third hoist drum is added to shift the bridle frame. The rapid-shifting bridle system (upper right of drawing) permits frequent shifting of the scraper's line of operation in non-caving material, shallow excavations or overburden.

Operating costs are lower—basically, it is cheaper to drag material than it is to lift and transport it. You eliminate the power costs of moving heavy machinery about the area. You pay only for pay loads—not dead weight. When expendable parts—sheaves, clutch or brake linings—are replaced, the machine is restored to practically new condition.

Sauerman can help you select the method of materials handling most profitable for your job—a system that will give you the lowest cost per cu. yd. handled.

SAUERMAN BROS. INC.

630 S. 28th AVE. BELLWOOD, ILL.

Crescent Scrapers • Slackline and Tautline Cableways • Durolite Blocks

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Ideal's Expansion Told

IDEAL CEMENT CO., Denver, Colo., announced that it is proceeding with a $2 million expansion and remodeling program at its Okay, Ark., plant which will increase the plant's capacity by 30 percent, to 2,000,000 bbl. per year.

In other quarters, Ideal has formed a Canadian subsidiary, Ideal Cement Co. Ltd., headquartered in Vancouver, B.C., for the development of the company's quarry and plant site holdings in Canada.

Rebuilding of Ideal's plant at Boettcher, Colo., is expected to get underway by December 15. The addition to the Baton Rouge, La., plant and the New Orleans terminal addition have been completed.

The new Houston plant is scheduled to put its first units into operation on January 15. A second kiln will be installed in the Houston plant, which will bring its capacity to 12,000 bbl. per day.

New Canada Cement Plant

SASKATCHEWAN CEMENT CORP., Regina, Saskatchewan, has begun production of cement at its new $8 million plant on a 320-acre site in the Regina, Canada area. Four types of cement—standard portland, high-early-strength, oil well and modified sulphate, will be produced, with annual capacity set at 850,000 bbl.

The corporation has limestone reserves in the Mafeking, Man., area where the stone is crushed and shipped to Regina. Clay and silica sand are obtained near the plant, and iron pyrites and gypsum are brought in from Manitoba and British Columbia.

Gypsum Lime Acquires Plant

GYPSUM LIME AND ALABASTINE CO. OF CANADA, LTD., Toronto, Ont., Can., has announced the acquisition of Windsor Plaster Co., Halifax, Nova Scotia. A $100,000 plant improvement program will get underway which is expected to double the Windsor current production. Kenneth G. Eisner will continue as manager of the Windsor operations, says P. N. Gross, president of Gypsum Lime.

Gravel Firm Purchased

GRAVEL PRODUCTS CORP., Buffalo, N.Y., has been purchased by Houdaille Industries, Inc. The acquisition was made through a purchase of the capital stock. Ralph F. Peo, president of Houdaille Industries, said that all phases of the business of Gravel Products, a 30-year old company in the

(Continued on page 44)

LONG HAUL—Even the longest Barber-Greene Conveyors are built of standardized components . . . produced on a precision, quantity production basis. They can be assembled in almost limitless combinations to cut the time and cost of any material handling job.

Long or short haul—it costs less to move materials with belt conveyors

Thousands of installations—ranging from a few feet to thousands of feet—prove that belt conveyors move bulk material at lowest cost.

No other machine is so simple in construction or requires so little maintenance. No other machine can deliver such high hourly capacities with so little power or attention.

Barber-Greene has given a new meaning to belt conveyor economy. Built of standardized components, Barber-Greene Conveyors are delivered sooner . . . require less engineering . . . are erected faster . . . give top performance . . . and are more easily altered to meet changing or expanding requirements. Being standardized, repair parts are readily available—usually from the stock of your local distributor.

SHORT HAUL—Even the shortest Barber-Greene Conveyors are available in standardized components in the width and length to suit your needs. These small conveyors provide the economical way to handle the widest range of materials with greatest flexibility.

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Send for this 192-page conveyor book. It's comprehensive, easy to use.
Write for Catalog 76-A on your company letterhead.

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AURORA, ILLINOIS, U.S.A.

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WITH KIESLER BUCKET!

So reads a testimonial from a large carbon producer. Not only was the KIESLER CLAM SHELL well over specifications of this organization, but it out-dug and out-loaded more than any competitive bucket tested.

There IS a reason: The KIESLER CLAM SHELL DEPENDS ON THE PROVEN PRINCIPLES OF LEVERAGE, NOT ON DEAD WEIGHT (COUNTER-WEIGHTS) FOR DIGGING ABILITY. The leverage of the 2-lever-arms exerts its powerful force directly to the shells and cutting edges, thus digging-in for a greater payload every time. And this maximum in power and performance is accomplished with a minimum amount of cable and reeving. The name KIESLER on your bucket is an assurance of superior performance and high-quality construction; backed up by over 64 years of bucket-manufacturing experience!

PROMPT SERVICE AVAILABLE

Factory service on Kiesler Buckets and as an accomodation on other makes, too. Whatever the problem, feel free to call on us.

GUARANTEE

Kiesler Buckets are guaranteed to outperform and do a bigger day's work than any other Bucket of equal weight, width and size, when properly reeved and operated.

JOS. F. KIESLER CO.

KIESLER

Since 1892

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gravel and ready-mixed concrete business, will be integrated with those of the Buffalo Crushed Stone Corp., a Houdaille subsidiary.

Javanese Learn About Cement

FOURTEEN INDONESIAN ENGINEERS, chemists and technicians have completed a course of instruction at the Kennedy-Van Saun Manufacturing and Engineering Corp.'s pilot plant, Danville, Penn., to prepare themselves for management of the new Gresik Cement Plant, Java, Indonesia. F. O. Reedy, president of Kennedy-Van Saun, arranged the training program, in which every phase of cement manufacture was included.

Kennedy-Van Saun has delivered to Gresik complete equipment for a cement plant which will have an annual capacity of 250,000 metric tons. Equipment includes two 11- x 375-ft. rotary kilns, and five 8- x 36-ft. grinding mills with 1000-hp. motors. Morrison-Knudsen Co., Inc., Boise, Idaho, is the general contractor.

Texas Plant Near Completion

TEXAS PORTLAND CEMENT CO., Orange, Tex., expects to supply cement in quantities to Texas users by the first of the year, as the plant is in final process of completion. A 300-ft. rotary kiln, supplied by Kennedy-Van Saun Manufacturing and Engineering Corp., New York, N.Y., has been installed. The plant, reports Kent B. Diehl, Sr., president of Texas Portland Cement Co., embodies many technical advances and innovations in the cement industry. Construction was begun November 1, 1955.

Start Sand Plant

EDGAR PLASTIC KAOLIN CO., Edgar, Fla., announces the completion of facilities for production of plaster-masonry sand for contractors, small chat for concrete block manufacture and sand-blast grade sand. Current expansion plans call for the installation of drying equipment to produce other industrial sands.

Pavement Yardage

AWARDS of concrete pavement for the month of September, 1956, and total awards for the first 9 months of 1956 were listed by the Portland Cement Association as follows:

	Sq. Yd. awarded during: September, 1956	First 9 Mos.
Roads	1,911,201	31,159,018
Streets and alleys	2,661,248	26,263,165
Airports	694,792	8,546,470
Totals	5,267,241	65,968,653

(Continued on page 46)

"They were blasting right outside the window but we never lost a teacup!"

SAYS MR. V. H. SHUSTER, OWNER
VAN CLEVE CHINA & GLASS CO.
MILFORD, CONN.

Photo shows nearness of Connecticut Turnpike blasting operations to the Van Cleve China & Glass shop.

FOR GOOD COMMUNITY RELATIONS . . . "GOOD-WILL" TECHNIQUES IN BLASTING

Today, your blasting must be so precisely planned that the business and family life of the community can go on without disruption.

Realizing the importance of good community relations to your business, AMERICAN's engineers have developed blasting procedures that we call "Good-Will" techniques. These techniques are at your service, to help you attain maximum blasting efficiency and at the same time minimize the effects of noise, vibration, and shock.

AMERICAN's engineers are trained specialists, always ready to assist you in the selection and use of our high-grade materials. Their skill and expert understanding of the best techniques in blasting are part and parcel of the many services you obtain when you are an AMERICAN customer.

AMERICAN plants and magazines are conveniently located for quick delivery direct to your operation.

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High Explosives	Electric Blasting Caps
Permissibles	Instantaneous
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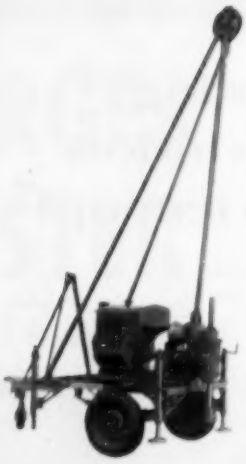

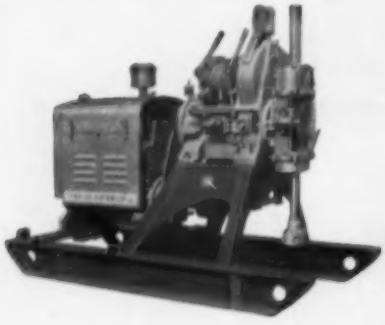

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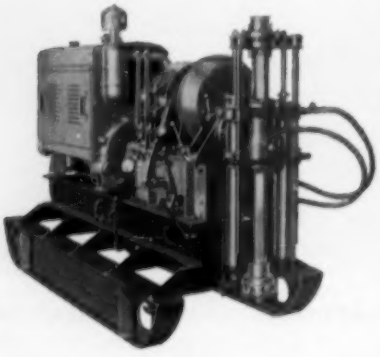
UP TO 3000 FEET DEEP*

*Depending Upon Size Core Required.



Yes . . . if you need a small one or a heavy one we have just the core drill machine for you. Manufactured by us and used in our own contract drilling department they are made to operate efficiently under the most difficult conditions, giving you the utmost in performance. Write today, giving full details and a descriptive folder on the proper size will be sent. (Skid mounted, trailer mounted, truck mounted.)

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International Minerals To Build General Office

INTERNATIONAL MINERALS & CHEMICAL CORP., Chicago, Ill., will build new general headquarter offices in Skokie, Ill., a nearby suburb, to cost nearly $3,500,000. Along with the existing research laboratories at this location, the total investment will be $4,500,000.

President Louis Ware pointed out that the new facilities will provide space for estimated growth through 1965 with sufficient ground area available for further expansion. Since the company moved its general offices from New York to Chicago in 1941, sales have increased from $13,600,000 to more than $96,000,000. He also said that nearness to the new O'Hare Airport was a consideration in selecting the location. The company now maintains two planes for its staff, and contemplates the construction of a "heliport" at Skokie for accommodation of a helicopter.

The new construction will comprise a five-story administrative office building, a three-story building to house staff and operating divisions, a one-story electronic center to serve all the functions on the site, and a one story cafeteria building connected to the administrative building by an employe lounge-auditorium, all air-conditioned. Total number of employes at Skokie will be approximately 600.

International Minerals is one of the world's principal phosphate producers, and is a leader in potash, feldspar, bentonite, and perlite production. It has six product divisions with mines, refineries and manufacturing plants at 72 locations in 26 states and in Canadian provinces.

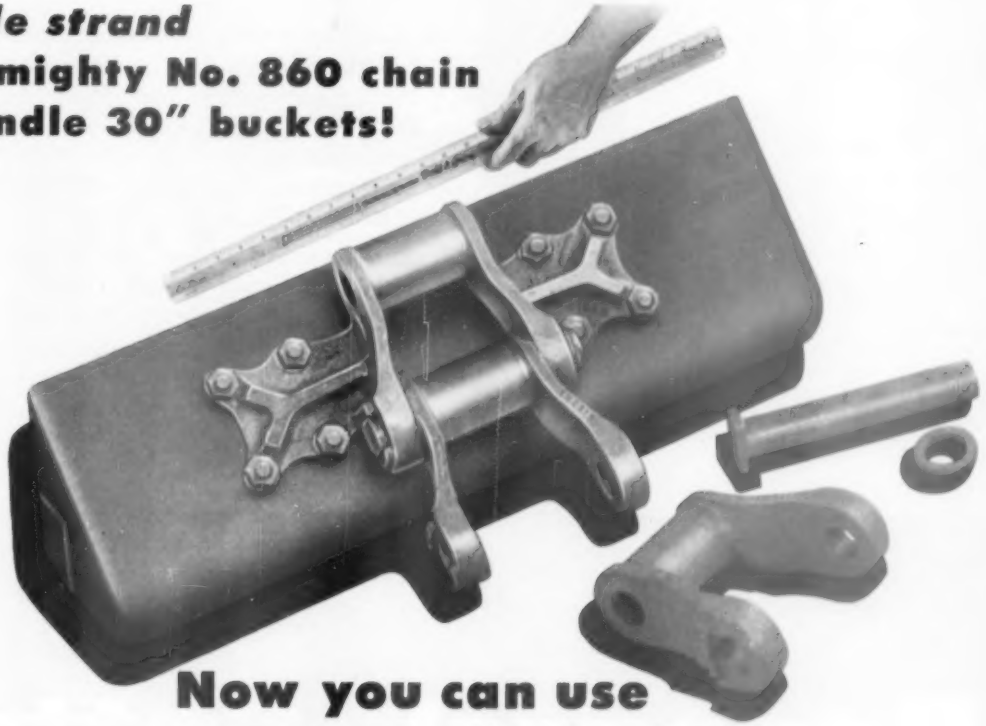
Calaveras Makes Purchase

CALAVERAS CEMENT CO., San Francisco, Calif., announces the purchase of a majority of stock in five transit-mix and gravel producing companies in California's central valley. Figuring in the $500,000 transaction are Standard Materials Co., Inc., Modesto; River Rock, Inc., and Concrete Supply Co., Inc., Merced; Merced Sand & Gravel, Inc., Atwater; and Standard Rock Co., Inc., Escalon.

Increase Scheduled Output

MISSISSIPPI VALLEY PORTLAND CEMENT CO., Vicksburg, Miss., has announced an increase in the capacity of its plant near Vicksburg, now under construction. Originally planned to have a 1500-bbl. per day capacity, the plant is now slated for a 2000-bbl. output. Production is scheduled to begin within a year.

A *single strand* of the mighty No. 860 chain can handle 30" buckets!



Now you can use one strand in place of two

Biggest. With an 18" span between outside holes in the K-4 attachment link, a *single strand* of Kensington's new No. 860 elevator chain easily handles buckets up to 30" wide.

Strongest. The No. 860 chain is heavied-up at all critical points. At its weakest point, for example, it has a cross section of 3.75 square inches at 76,000 lbs. psi for an ultimate strength of 285,000 lbs. Using the customary 6:1 safety factor, this means the No. 860 has a safe working load of 47,500 lbs. . . . *almost 50% more than the next strongest elevator chain on the market!*

Consider too, the 1½" pins . . . live bearing area, barrel contact area, ¾" bucket bolts. Or whatever basis you compare, the No. 860 far excells in ruggedness.

Built of KENKROME. The No. 860 chain is built from KENKROME . . . an unusual alloyed manganese steel specially created by Kensington to resist wear and abrasion.

Exceptionally hard to begin with, KENKROME has the ability to develop even greater *surface hardness* when exposed to use. Yet beneath this ever-hardening "skin", the metal stays tough and able to withstand the shocks and impact that break steels which are hard all-the-way-through.

Kensington renewable tooth sprockets are also big money savers. KENKROME Tooth Segments can be replaced by 2 men during lunch hour . . . without even removing the chain! And a new set of teeth cost only a fraction of what you'd pay for a complete one-piece sprocket.

When you order your next elevator chain, it will pay you to specify Kensington's No. 860 Chain and Renewable Tooth Sprockets.

Other wear-resisting KENSINGTON replacement parts:

DIVISION HEAD SECTION
for grinding mill has exclusive design features which greatly prolong service life.

SCREENS, GRATES, LINERS
and other alloyed manganese steel replacement parts fit all standard cement mills.

CHAINS, SPROCKETS
150 different standard chains and sprockets plus many special models . . . all of wear-defying KENKROME.

KENKROME ELEVATOR BUCKETS
for outlast ordinary fabricated buckets wherever abrasion and impact are important factors.

Kensington STEEL COMPANY

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Enter 1120 on Reader Card

Completed in 1954, this Research-Cottrell precipitator cleans the gases from Kiln No. 5 of Missouri Portland's Prospect Hill Plant. The gases from this rotary wet process kiln pass from the kiln end housing, through the precipitator, induced draft fan and then up the stack.

Rapping puffs were eliminated in this installation with Research-Cottrell's electronically controlled M. I. Rappers. This method of continuous, sequential rapping avoids dust re-entrainment in the gas stream and assures optimum precipitator performance at all times.

Research-Cottrell Precipitator at Missouri Portland

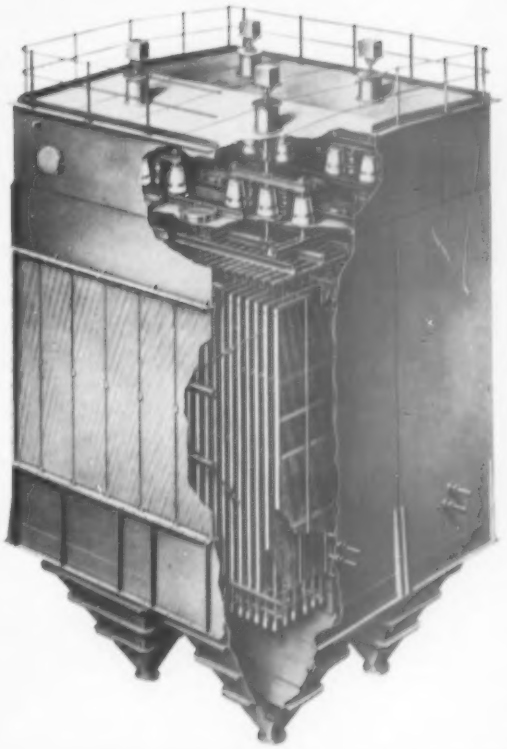
In addition to this installation, Missouri Portland has ordered three more Research-Cottrell precipitators. One, installed early this year, cleans the gases from Prospect Hill's 12′ x 450′ wet process kiln.

Two other units have been ordered for two dry process kilns at the Sugar Creek Plant, Kansas City, Mo. M. I. Rappers will be included on all these installations.

For a detailed description of Research-Cottrell precipitators and their applications in the cement industry, write for Bulletin GB.

RC 166

At Left:
Shows Research-Cottrell precipitator, connecting flues and stack. Cement block building in foreground at right is substation which contains two half-wave rectifier sets and M. I. Rapper control equipment.



At Right:
Cutaway drawing of the Research-Cottrell expanded metal plate precipitator installed at Prospect Hill Plant of Missouri Portland Cement Co.

Research-Cottrell, Inc.

Main Office and Plant: Bound Brook, New Jersey • 405 Lexington Ave., New York 17, N. Y.
Grant Building, Pittsburgh 19, Penna., 228 No. La Salle St., Chicago 1, Ill. • 111 Sutter Bldg., San Francisco 4, Cal.

HINTS AND HELPS

PROFIT-MAKING IDEAS DEVELOPED BY OPERATING MEN

Speeding Up Bulk Loading of Cement Trucks

TRUCK-AND-TRAILER UNITS for hauling bulk cement in the West is often referred to as a "train". Bulk-loading of a train involves various types of equipment, all designed to speed up loading and at the same time maintain accuracy of weights.

The illustration shows part of the "underneath" section of a nest of cement silos which is immediately above

Silo installation for loading out bulk cement truck and trailer units: (A) shows the Airslide; (B) shows the chute to the bulk cement truck tank; and (C) is a rubber hose connection to the cement "train"

the train. The area marked "A" shows one of the 14-in. Fuller-Huron Airslides that collect and deliver the cement to either "B" or "C". Directly under "B" is a scale platform, and similarly under "C" is a second scale platform for weighing the trailer independent of the truck or semi unit. In this instance, "B" is the chute that delivers to the bulk truck's tank and was part of the original assembly.

This arrangement, shown at "B", had its disadvantages and the plant is now experimenting with a rubber hose as shown at "C". At first a worn out section of reinforced rubber hose, similar to that used at the docks for pumping cement, was used but this was too heavy. The rubber hose shown at "C" is a thin-wall, light weight section favored by the operators.

At this installation there is a dial (Howe) for each scale platform, and a third dial that totals the weight of the train. As the distribution plant has two truck-ways, this means four scale platforms and six dials are available.

Removing Sand from Water System

A LARGE WEST COAST SAND AND GRAVEL PRODUCER, in an area where water is not too plentiful, sunk a deep well to about 450 ft. with the hope of getting more water at that depth although a considerable amount was encountered at 250 ft. A deep well pump was installed, but it was found that sand infiltrated into the water. If not removed, this sand might plug water sprays and cause other troubles.

To correct this condition, a 24-in. Georgia Iron Works liquid cyclone was installed with a pump delivering to cyclone under moderate pressure. Trapped sand is drained from time to time from the bottom of the cyclone cone by means of a molasses valve.

The de-sanded water discharges to a large diameter, vertical concrete pipe, about 36-in. in diameter, the bottom of which connects with a smaller diameter pipe lying practically horizontal and underground. This pipe runs to a rectangular dirt-dike reservoir. Connected to the underground pipe are three 30-in. diameter vertical pipes. In one of the vertical pipes is a float that controls the pump motor at the deep well unit. A low pressure water pump has been placed in one of

Above: Water reservoir dike. **Below:** Liquid cyclone which desands water from deep well pump

the other two vertical pipes, and a high pressure pump in the third pipe. Both deliver water to the plant.

By means of the float mechanism, the deep well pump operates until the reservoir is at a predetermined level which may be for 24-hr. a day although the plant normally runs on an 8-hr. day schedule. The water in the reservoir and in the vertical concrete pipes is at the same level. The deep well pump is a 600 g.p.m. Byron-Jackson unit driven by a U. S. motor.

(Continued on page 53)

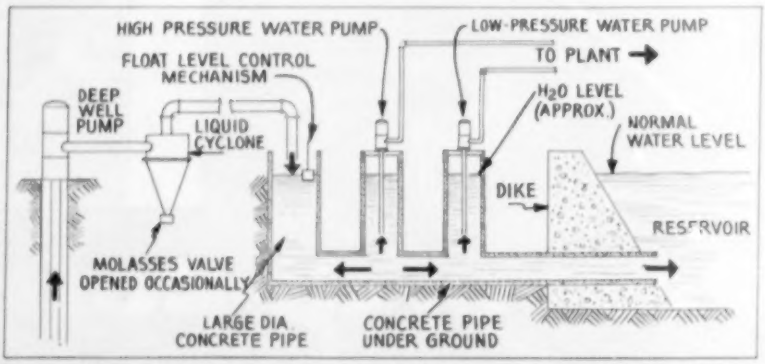
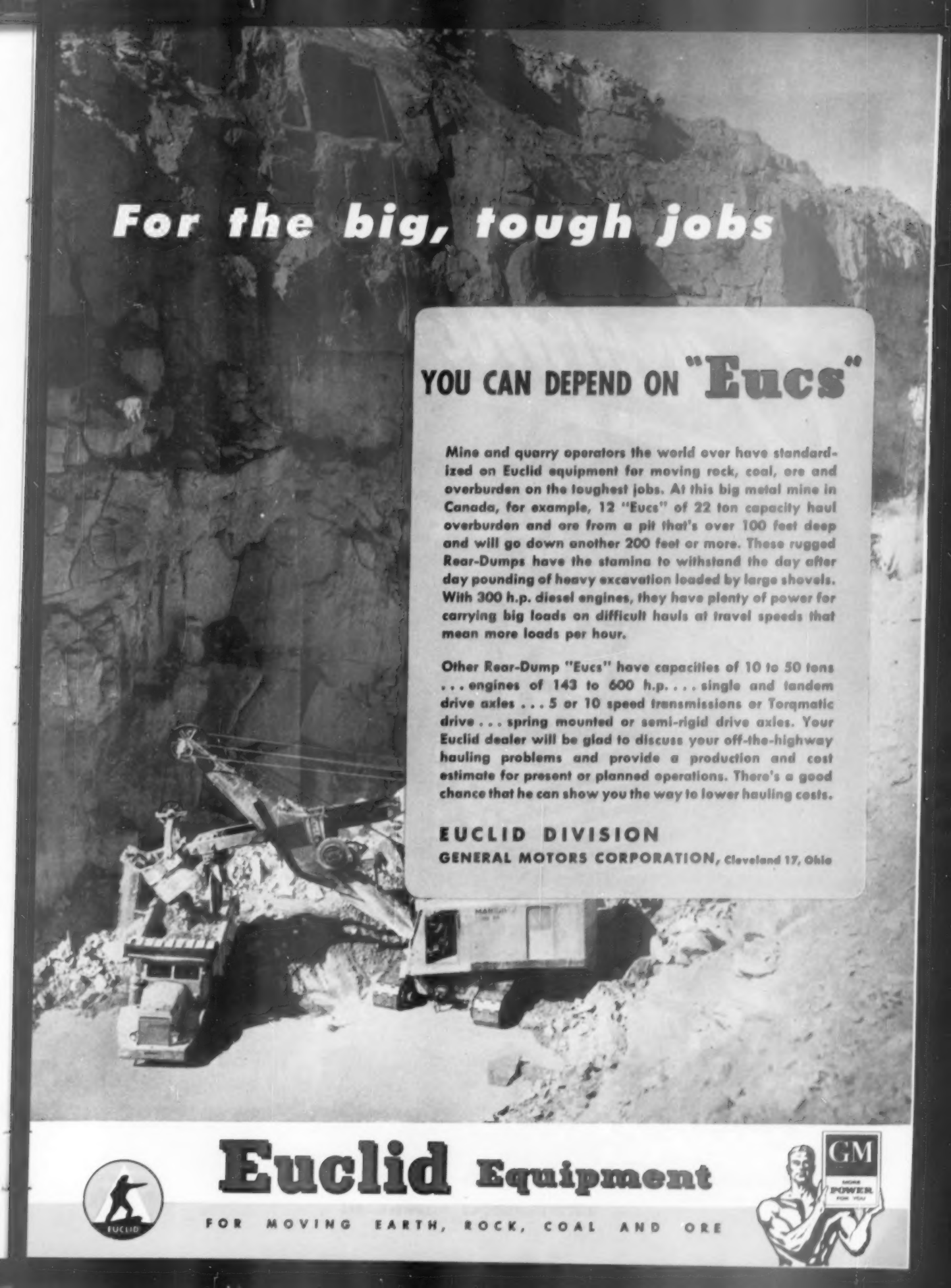


Diagram shows water storage system and method of desanding water with liquid cyclone

Enter 1000 on Reader Card



YOU CAN DEPEND ON "Eucs"

Mine and quarry operators the world over have standardized on Euclid equipment for moving rock, coal, ore and overburden on the toughest jobs. At this big metal mine in Canada, for example, 12 "Eucs" of 22 ton capacity haul overburden and ore from a pit that's over 100 feet deep and will go down another 200 feet or more. These rugged Rear-Dumps have the stamina to withstand the day after day pounding of heavy excavation loaded by large shovels. With 300 h.p. diesel engines, they have plenty of power for carrying big loads on difficult hauls at travel speeds that mean more loads per hour.

Other Rear-Dump "Eucs" have capacities of 10 to 50 tons . . . engines of 143 to 600 h.p. . . . single and tandem drive axles . . . 5 or 10 speed transmissions or Torqmatic drive . . . spring mounted or semi-rigid drive axles. Your Euclid dealer will be glad to discuss your off-the-highway hauling problems and provide a production and cost estimate for present or planned operations. There's a good chance that he can show you the way to lower hauling costs.

EUCLID DIVISION
GENERAL MOTORS CORPORATION, Cleveland 17, Ohio

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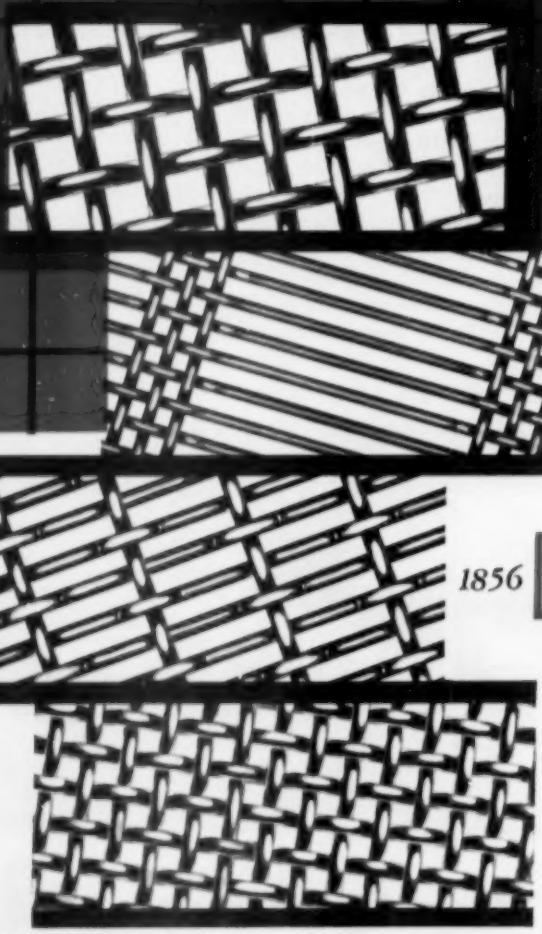
FOR MOVING EARTH, ROCK, COAL AND ORE

Economical!

Ludlow-Saylor

Super-Loy WOVEN WIRE SCREENS



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Because they have been *job proven* to have maximum resistance to wear, L-S Super-Loy Screens keep their accurate openings longer . . . cut down the expense of replacements, downtime, maintenance . . . and reduce your screening costs to absolute minimum. *Most sizes and weaves shipped immediately from stock.*

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Pittsburgh, Union Trust Building • Houston, 1213 Capitol Ave.
WEST COAST: Star Wire Screen and Iron Works, Inc., 2515 San Fernando Rd., Los Angeles; Subsidiary, Ludlow-Saylor Wire Cloth Co.

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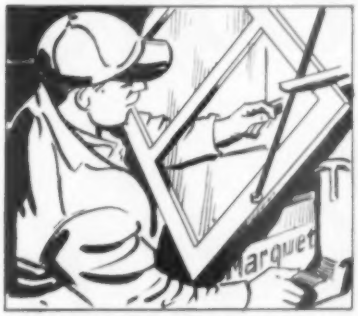
Packing Protective Devices

Two IDEAS have been adopted by cement companies to prevent eye injuries in the operation of bag packing machines. In the sketch is illustrated a safety glass guard used by operators at Marquette's Cape Girardeau, Mo.,



Hinged safety glass guard protects packing machine operator

plant as protection against the danger of bursting bags.

Packers at Ideal Cement Company's Okay, Okla., plant have solved this problem by the use of discarded conveyor belting as protective hoods around the valve handles of packing machines.

Root Remover

A SAND AND GRAVEL PRODUCER in the Northwest uses two 36-in. diameter root and EL-Jay water-logged chip removers. Sized and previously well-washed gravel goes to each unit. Gravel sizes are 1½-in. to 1-in., and 1-in. to ½-in.

These root removers resemble log washers, each having a 15-ft. long tank and a 15-hp. motor to operate each mill. By having plenty of turbulence in the pool area, lightweight refuse is lifted out and overflows to waste. The paddles on the logs are naturally exposed to considerable wear, but maintenance costs are cut to a minimum by the use of Stoodite hard-facing alloy No. 1027.

Movable Pump Supplies River Water for Plant

WASH WATER for a Middle West crushing plant is supplied by a 5-in. Gardner-Denver pump which draws it from an adjacent river about 40 ft. below the plant level.

As the river level fluctuates rapidly with intermittent heavy rains, an arrangement was needed to raise and lower the pump rapidly. Strong currents ruled out using a floating system. The pump was therefore mounted on a supporting steel carriage riding on rails which extended down the steep bank to the river bottom. The

Track to river surface to which pump is lowered on special carriage

Pump and motor mounted on special carriage for lowering to water's edge on rails

pump is mounted at an angle on the carriage so that when lowered to the water's edge, it will be level.

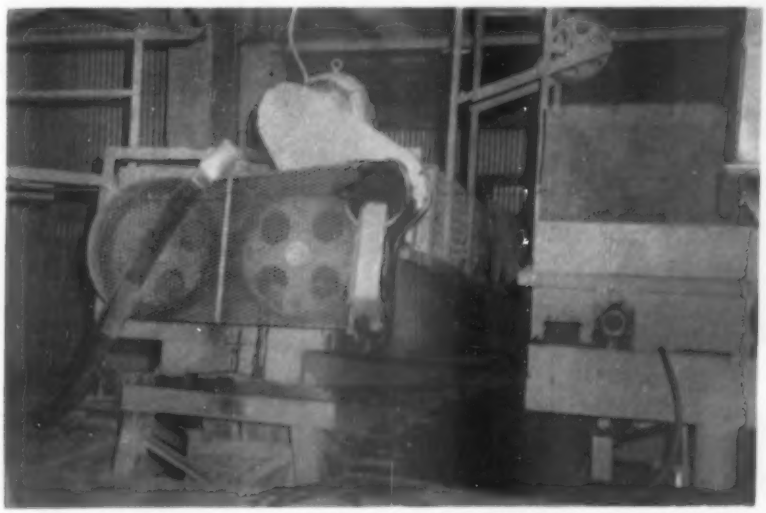
Rinse Screens Under Bins

AT TIMES A SMALL PERCENTAGE OF SOFT STONE in any aggregate may undergo disintegration in a bin or stockpile due to the pressure of tons of material above it. Movement in a stockpile also is a factor.

One company facing this problem installed small rinse screens under all bins containing aggregates coarser

Illustration shows, above, the hose lines extending from main water supply pipe, and below may be seen the small screens under bins with water spray units above

than ⅜-in. The 24- x 48 in. screens have spray units supplied fresh water by lengths of hose connected to the main water supply pipe; in this case a 14-in. diameter spiral wound steel pipe. A Fairbanks, Morse centrifugal pump delivers water to the main line at 40 p.s.i.



Root remover which resembles a short log washer. Worn blades are rebuilt with Stoodite

Which electric leads the

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Another reason. P&H Electronic Controls. They give you instant response to signal. Stepless control. 12% faster cycle. 16% savings in operating time. Less operator fatigue. Reliability. Simplicity, plus many other advantages, exclusive with P&H.

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P&H ELECTRIC SHOVEL DIVISION

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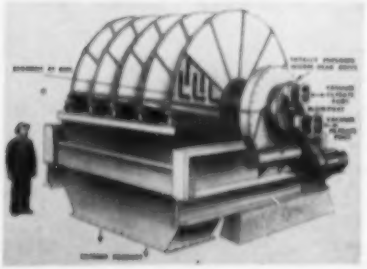
NEW MACHINERY

Flange Lubricator

TRANSALL, INC., Railway Division, 109 N. 11th St., Birmingham, Ala., makers of Transall Flange Lubricator, Lubricating Sticks and Flange Turners, suggest the use of these lubricators to cement and slag companies having rotary kilns. The flange lubricator is pictured in use on a rotary kiln at Birmingham Slag Co. They are also reported to be effective on diesel locomotives, diesel cranes, overhead cranes, and mine locomotives—wherever there is flanged wheel friction.

The Transall Lubricator can be mounted in any suitable location that moves with the lateral and vertical motion of the wheels. Three sliding adjustments permit placing the lubricating stick in the throat of the flange from any mounting position. A high flange, which can then be turned down with the Transall Flange Turner, is said to result from use of the lubricating stick.

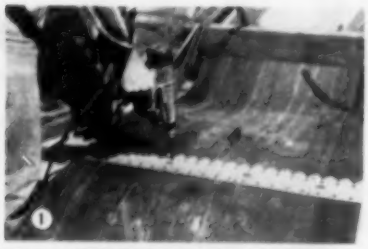
Enter 114 on Reader Card

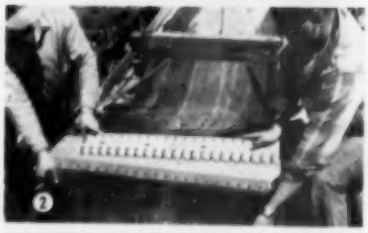


Disc Filter

DENVER EQUIPMENT CO., P.O. Box 5268, Denver 17, Colo., has brought out a new 9-in. diameter Disc Filter which has 105 sq. ft. in the filter area per disc. There are 12 segments per disc instead of ten, providing more filter capacity. Patented filter segment design provides gravity drainage prior to discharge, resulting in drier filter cake, and flexible bellows-type hose prevents tension on the valve cover.

Enter 115 on Reader Card





Belt Fasteners

FLEXIBLE STEEL LACING CO., 4640 Lexington St., Chicago 44, Ill., has announced a faster method of splicing conveyor belts with Flexco Belt Fasteners and Flexco Power Tools. A new boring bit and alloy steel wrench have been designed for use in standard electric or air impact tools.

The three illustrations show mechanics using the Flexco Power Tools. Fig. 1 shows a power tool boring bit boring holes in the belt for insertion of the fasteners. Fig. 2 shows the templet being used to position the bolts for one end of the belt after having inserted the fasteners through the holes in the other end. Fig. 3 shows one man using the power wrench to run down the nuts while the other is using two bolt breakers to break off the excess of the bolts that remain.

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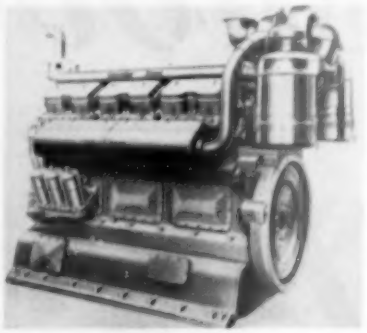


V-Type Engines

CATERPILLAR TRACTOR CO., Peoria, Ill., has brought out two heavy-duty V-type engines, D375 (Series D) and D397 (Series D). Available in turbocharged, roots-blown, naturally aspirated and spark ignited versions, the 8- and 12-cylinder engines are of 4-cycle design. D397 is pictured above.

New features include: turbochargers which use the energy of exhaust gases to increase power; cylinder head design for improved engine breathing ability; and exhaust manifolds offered in "dry," "shielded" and "wet" versions. The spark-ignited engines use natural gas as fuel. In the new ignition system, a magneto feeds low tension current to high tension transformers located near the spark plugs, thus keeping the high tension leads very short for a hot, positive spark.

Enter 117 on Reader Card

Conveyor Stacker

LINK-BELT CO., Prudential Plaza, Chicago, Ill., displayed a model of a 275-ft. radius traveling belt conveyor stacker designed for a specific stockpiling operation, at the American Mining Congress 1956 Mining Show, Los Angeles, Calif., October 1-4.

The self-propelled stacker is capable of stockpiling a 90-ft. high x 800 ft. wide x 1300-ft. long pile. The stacker will be fed by a 1400-ft. trailing belt conveyor.

Enter 118 on Reader Card

(Continued on page 122)

Enter 1067 on Reader Card

ANY SHOVEL CAN DIG DIRT!

But the Business of Superior Stone Co. is ROCK!

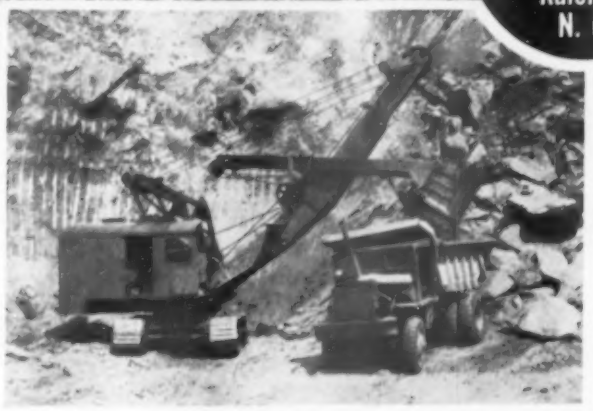
35 NORTHWESTS for Superior Stone Co., Raleigh, N. C.

The Superior Stone Co. of Raleigh, N. C., puts their machines in material that really tests equipment. Look at these operations. It is years of performance in stuff like this that has made Superior Stone Co. buy their 35th Northwest.

Northwests are *real* Rock Shovels! Get on a Northwest if you know operation. Get the feel of the controls. Feel that crowd take a-hold. The dipper goes right on through as the hoist takes it up — no "re-starts" here. It's a full load in one cut. Remember, the Northwest Dual Independent Crowd utilizes force most other independent crowd shovels waste — force that puts greater effectiveness at the dipper lip for handling tougher digging and producing more output.

To Northwest digging power add the "Feather-Touch" Clutch Control which brings ease of operation without the complications of pumps, piping and compressors; the Cushion Clutch that eliminates shock overloads before the damage is done; Uniform Pressure Swing Clutches that cut spotting time by eliminating the jerks and grabs in swinging; Northwest simplicity of design that makes upkeep easy and reduces "down time", and all other Northwest advantages that make Northwest a *real* Rock Shovel.

You can plan to have a Northwest. Now is the time to find out about Northwest design and operation. Why not talk it over with a Northwest man?



One of Superior's old Northwest 80-D's at Red Hill, Va. This machine is almost 9 years old and has handled almost 6 million yards of Rock.

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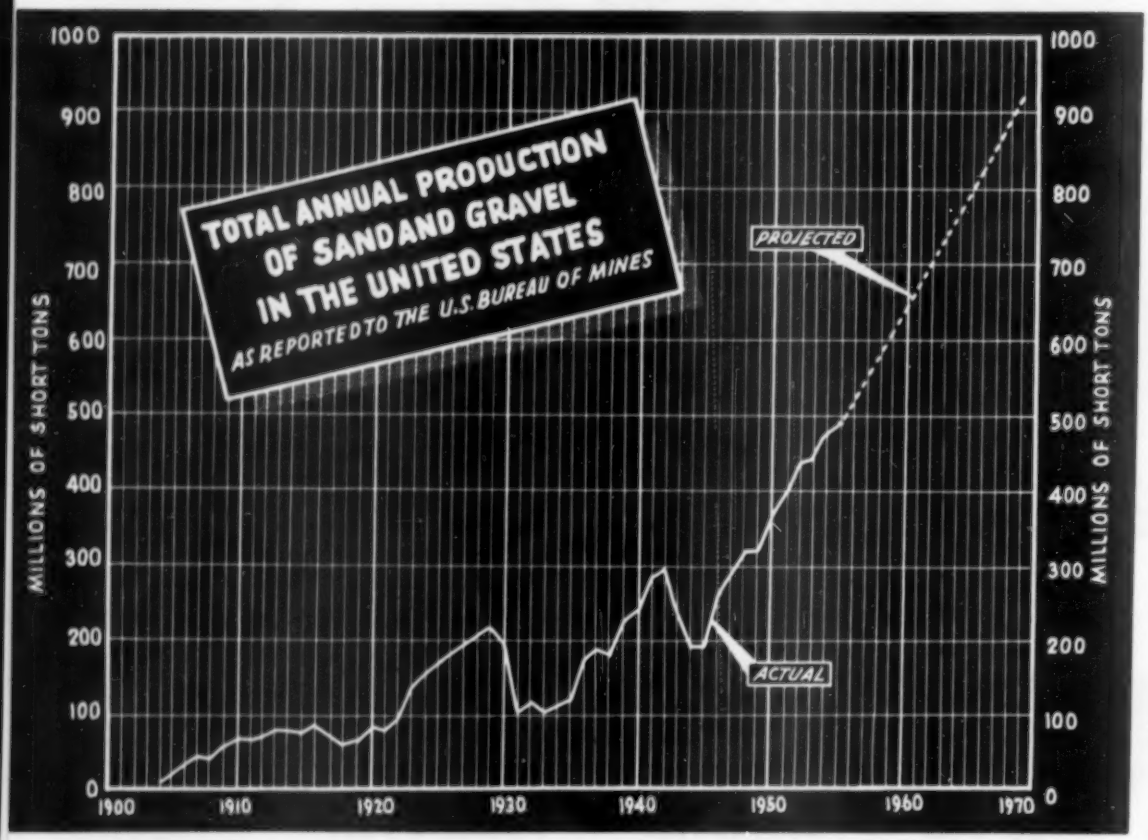
$33 Billion Road Program Means . . .

Growing Pains For Sand Ready Mix

By EZRA C. KNOWLTON

Mr. Knowlton knows highway and industry problems. His 40 years in both fields qualified him to lead the NSGA-NRMCA joint committee on federal highway legislation. He has represented both groups at Congressional hearings; is on the executive committee of NSGA. Since 1941, he has been executive vice-president and director of Utah Sand and Gravel Products Corp.



and Gravel Industries

SAND AND GRAVEL—now first in tonnage production of all minerals—form the solid foundation on which America travels. Small wonder, then, that the new $33 billion federal highway program will have considerable impact on the sand and gravel industry. But in estimating this impact, it should be underscored that the rapid growth in use of sand and gravel indicated considerable further gains even without the new road program. With expanded federal highway construction, the industry will prosper as never before in history.

Sand and gravel appear in many important ways in our road building program. They are found as aggregates with cement, asphalt and other binders to form all kinds of paved surfaces. They serve alone as gravel bases for pavements. They often form finished surfaces for secondary highways. As a matter of fact, sand and gravel are so important and basic to American industry that trends in their annual production are a pretty good measure of the ups and downs—not only of construction volume—but of the general economy of the nation.

What does future sand and gravel production look like **without** the new highway program? Discounting the depression and World War II, sand and gravel sales have increased steadily over the last 50 years—paralleling increases in the total volume of construction. Projecting construction volume into the future along the same upward curve (see chart), we get an estimated annual production of sand and gravel of about 640 million short tons for 1960, 700 million for 1962, 800 million for 1965, and 920 million for 1969.

Now, what can we expect in the way of increases in these figures as a result of the new federal highway program? In a comprehensive report released in July, 1956, the Bureau of Public Roads estimated the **normal** highway aggregate demands for all road-building agencies to be about 403 million tons in 1955. Assuming two-thirds of this to be sand and gravel, we have about 270 million tons as the present annual highway construction demand for these materials.

But, projecting highway needs to 1969 and **including** the expanded federal road building, the report estimated that approximately 750 million tons of aggregates will be required annually. Again applying the two-thirds yardstick, we get an annual demand of 495 million tons for sand and gravel during the accelerated road building years —or an increase of about 225 million tons annually because of expanded road building under the Eisenhower program. Adding this to the non-highway projected figures, we have an estimate for 1960 of 865 million tons, increasing to an annual demand for sand and gravel of 1,145 million tons by 1969. This is based on the assumption that (1) our economy continues its present rate of growth for years; (2) that there are corresponding increases in needs for sand and gravel; and (3) that the $33 billion highway program will be financed and constructed as now planned.

Expanding production of sand and gravel to meet those increasing demands involves two interrelated problems. First, their low cost. Second, the real measure of the ability of the sand and gravel industry to meet growing highway demands is not one of plant capacity, but rather sufficiency of available near-at-hand deposits from which large amounts of these materials must come. Present low cost results from two factors: relative ease of production from raw to finished product, and wide distribution of the raw materials throughout the country, which keeps down haulage costs. As these easy-to-work, near-at-hand deposits become exhausted, the costs of production — especially of transportation—are bound to rise.

Because nature's bounty has produced and distributed these priceless natural resources so generously, people generally have taken it for granted that our supply of sand and gravel is inexhaustible. They are unaware of the production depletion of near-at-hand reserves—in spite of the production records which are being set yearly. The concern of those near the industry, however, has been real and growing. Vincent P. Ahearn, executive secretary of the National Sand and Gravel Association, has sounded this alarm wherever possible, as have many other industry leaders. J. Rutledge Hill, chairman of the Association's committee on taxation, has carried to Congress the sand and gravel industry's plainly justifiable claim for depletion allowances in the Federal tax structure. As a result, at least partial recognition has been obtained.

Preparation of the subgrade for a modern highway

Pending exhaustion of sand and gravel reserves has been long foreseen by close observers of the problem. The following prophetic words—written a generation ago by Edmund Shaw, then an editor of ROCK PRODUCTS—are even more applicable today.

"Survey of our sand and gravel resources shows that, while they are ample for the present, another generation will see most of the deposits near our large centers of population exhausted and some of them will be exhausted before that time. In the towns which depend on river dredging for supplies, it becomes necessary to go farther away each year. — Our sand and gravel deposits are great national assets and, like all mineral deposits which are being worked, they are dying assets."

Mr. Shaw continued on an optimistic theme that there were still available new acreages of gravel deposits in the neighborhood of our population centers. The construction of better highways, he continued, would make it possible to move the finished product over longer distances.

When this was written (1926), significant trends in highway construction were greatly relieving the pressure on gravel deposits in and near metropolitan areas. The expanding national road building program was producing in all parts of the nation highway contractors capable of operating efficient portable gravel plants—just then coming into general use. As the highway improvement program moved out to fill gaps in rural areas, available roadside gravel deposits were exploited, thus keeping down transportation costs as well as relieving the important commercially operated deposits. This trend has continued to the present. The recent Bureau of Public Roads report estimates that, of the 9710 million tons of all aggregates needed for the 13-year highway program, 5635 million tons will be produced by highway contractors.

The deposits near population centers have not fared so well. The sand and gravel industry would

Ready-mixed concrete for highways being delivered in a special patented - type carrier truck.

be healthier today had not so many of these lands been devoted to subdivisions, industrial plants, highways, airports, and similar uses. Invaluable gravel deposits are thus alienated. Even more serious, present day operators are hampered greatly in their attempts to locate and develop the remaining available areas due to adverse zoning regulations and neighborhood opposition. The industry has itself to blame for much of this opposition. It has grown out of past carelessness in leaving worked-over lands as eye sores and health hazards. It also resulted from not exercizing proper regard for the rights and interests of the general public.

The National Association, through its Public Relations Committee headed by E. K. Davison, president of J. K. Davison and Bro., Pittsburgh, is appraising this problem to assist its membership in finding a solution consistent with the public interest. Results from an industry questionnaire has informed the committee that zoning problems, now general throughout the nation, are going to become more serious and complex in the years to come.

Ready Mixed Concrete Industry

The effect of the expanded highway program will not be as great on the ready-mixed concrete industry, even though this comparatively new industry produced and sold about 80 million cubic yards of concrete in 1955. In the process, it consumed more than 100 million barrels of cement, (about 35% of total production) and some 125 million tons of concrete aggregates. Because ready mixed concrete cannot compete with large concrete pavers on highway jobs, it hasn't played as important a part in paving as it has in housing and building construction. A report of the National Ready Mixed Concrete Association notes that but 10.4% of total ready mixed concrete production in 1955 went into streets and highways. However, ready-mix has found a most important place in supplying concrete for such auxiliary paving jobs as curbs and gutters, sidewalks, and small highway structures generally found in metropolitan areas.

Without doubt, there will be special emphasis during the early stages of the great highway

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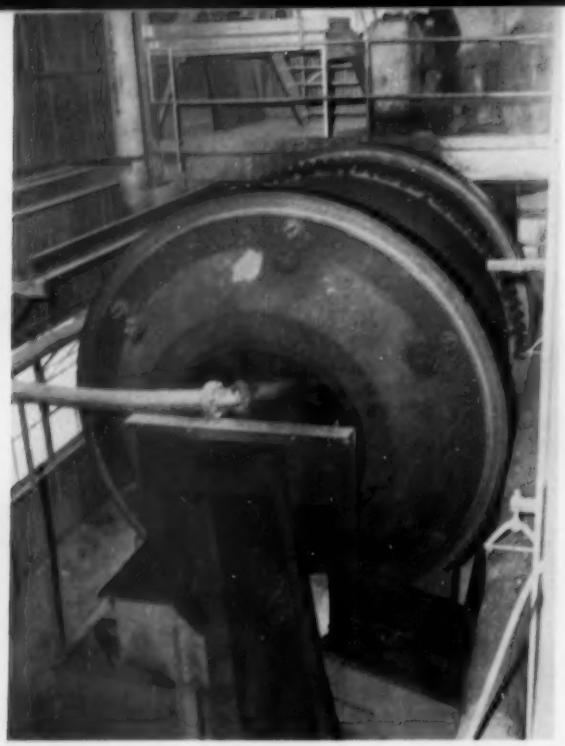

Separation of gypsum from dolomite and shale is effected in 10- x 10-ft. drum separator

Celotex Corporation

Doubles Gypsum Plant Capacity at Port Clinton

Spend $3.5 million for a heavy media plant to permit quarry operations on single level, and a modern wallboard and packing plant

By KENNETH A. GUTSCHICK

Architect's drawing of entire gypsum plaster and wallboard plant layout

CELOTEX CORPORATION completed a $3,500,000 expansion and modernization program last year at its Port Clinton, Ohio plant which doubled capacity. An important part of the modernization was the installation of a heavy media separation plant which permits the quarry to be worked in one level with all stone going to the H.M.S. plant. Formerly, a benching system was used to quarry out four gypsum "seams" in the 37-ft. face to eliminate dolomite and shale partings.

Celotex also built a new, modern wallboard and packing plant and expanded the calcining department. The board plant incorporates a 600-ft. Ehrsam wallboard and lath machine and an 8-deck 350-ft. Coe dryer; and two new paddle-mixers and bagging machines serve the packing department. In addition, the company constructed a completely new gypsum crushing and screening plant ahead of the H.M.S. plant; this incorporates a modern material handling system, including a 5000-ton covered surge pile following the primary crusher. The new facilities were placed in operation during the summer of 1955.

Overburden in the quarry is removed on contract by scrapers, while drilling and blasting are required in removing dolomite caprock over the No. 2 gypsum seam. Caprock drilling (2-in. holes) is handled by an Ingersoll-Rand hydraboom and X71WD drifter mounted on the front end of a Caterpillar D8 tractor; air is supplied by a 315-c.f.m. compressor, also mounted on the tractor

Raw rock storage building with roof sloped to angle of repose of material

(rear end), which is driven through power take off. A Joy 225 AS rotary drill, with tri-cone bits, is used in primary drilling, putting down 6¾-in. holes, at an 90 f.p.h. rate. The spacing pattern is 12- x 15-ft., with two rows shot at a time.

Quarry loading is handled by a Northwest 80D shovel fitted with 2½-cu. yd. Amsco buckets. The haulage fleet consists of four Euclid 36FD rear-dumps hauling 17-ton loads. Two Caterpillar D8 tractor-bulldozers round out the quarry equipment.

At the primary crusher station, stone is dumped into a 100-ton steel hopper, and fed by a 4- x 16-ft. Traylor Sheridan grizzly feeder to the 42- x 48-in. Traylor Type "HB" toggle-type jaw crusher. Fines bypassing the crusher and the crusher product are carried by a 24-in. conveyor, 422-ft. centers, to the raw rock storage. The crusher, driven at 150 r.p.m. by a 150-hp. induction motor through V-belts, is set with a 5-in. opening. The primary conveyor incorporates a 24-in. Barber-Greene motor-driven tripper which distributes the crusher-run material to a 70-ft. wide by 80-ft. long surge pile. The pile is protected from weather by a corrugated steel roof sloped according to the angle of repose of the material. A bulldozer is used to extend the pile or push up to the reclaiming tunnel. Two 3- x 4-ft. Jeffrey-Traylor Type 4D vibrating feeders reclaim the material to a 24-in. conveyor, 248-ft. centers, serving the secondary crusher building.

This conveyor discharges to a 5- x 12-ft. Ty-Rock F600 single-deck scalping screen which rejects plus 3-in. stone to a 3-ft. Traylor TY crusher (100-hp. drive). Both the crusher and screen throughs join and are carried by a 24-in. jackknife conveyor to the 24-in. conveyor, 145-ft. centers, feeding the sink-float building.

For efficient operation of the H.M.S. plant, the feed must be thoroughly screened and washed to remove all fines—even those clinging to larger particles. Beneficiation of gypsum is effected in a 10- x 10-ft. Wemco drum separator, which is driven at 5 r.p.m. by a 15-hp. motor. The heavy media used consists of a mixture of finely ground magnetite and ferrosilicon.

To reclaim heavy media used in the process, the float and sink products are fed to the two rinsing screens, with $\frac{3}{16}$-in. screen cloth, each having three

Primary drill puts down 6¾-in. holes at an 90 f.p.h. rate

screening sections. Water sprays are located over the second and third sections. Part of the media passing the first transverse screening section goes by gravity to the media sump for return to the drum separator. Dilute media passing the second screen section flows to another sump from which it is pumped to a media reclaiming circuit which consists of a drum-type electro-magnetic separator, a double spiral densifier, and a demagnetizing coil from which the media is returned to the media sump for re-use. Wash water from the third section of each rinsing screen flows to a third sump from which it is pumped to the second screening sections for re-use.

Water is obtained from the company's abandoned gypsum mine by two 6-in. pumps, which deliver it to a tank on top of the H.M.S. plant for distribution to both the H.M.S. and wallboard plants. Wash water from the plant is discharged to a settling pond and returned to the mine for re-use. Air for cleaning equipment is supplied at 80 p.s.i. by a Joy Model 25 100-c.f.m. compressor.

The H.M.S. plant was designed by Western-Knapp Engineering Co., Chicago, Ill. It features a centralized control panel located on the top floor of the building for operation and all plant facilities, as well as the units between the raw rock surge pile and the H.M.S. plant. These production units are electrically interlocked, and an automatic alarm system (horn and blinking red lights) is available to indicate malfunctioning units. Rheostat controls for the vibrating feeders under the surge pile are also located at the control panel, thus permitting the plant operator to easily change the plant feed according to operating conditions.

Four kettles in the old mill building and one 15-ton Ehrsam kettle in the adjoining new mill building are used in producing gypsum stucco at a 600 t.p.d. rate. In the older plant there are two parallel circuits, each involving a 6- x 50-ft. rotary dryer and a hammermill, the products from both mills being fed by bucket elevators and screw conveyor to three Kent air separators. Tailings from the separators are reground in three Raymond roller mills, and these products, plus the separator fines (averaging 85 percent passing 100 mesh) are taken to the kettle feed bins. The kettles are lined with firebrick and fired with natural gas. The cycle is about 2 hr., with the stucco dumped into the hot pits at 340 deg. F. It is then taken by screw conveyors and bucket elevators to the new mill building, where it is either tube-milled or combined with the new stucco product for transfer to the wallboard plant.

In the new mill building, grinding of raw gypsum is also two-stage, involving use of a Pennsylvania C3-30 reversible hammermill and a 54-in. Raymond high side airswept roller mill. The former is fed by an apron feeder from a 150-ton steel tank, and a bucket elevator transfers the product to the roller mill surge bin. Besides ginding to 85 percent passing 100 mesh, the roller mill dries the material by means of a flash drying system. A low pressure Maxon gas-fired air heater with a 3,400,000 B.t.u. per hr. rating is used for this purpose; it has a tempering Tee double damper for automatic temperature control.

Fineness of grind is regulated by a variable-speed Whizzer separator located on top of the mill. Ground material is drawn through the Whizzer blades by an exhaust fan, the gypsum being collected in a 9-ft. cyclone mounted on the roof. The cyclone has a 12-in. motorized air-lock valve for discharging to the 50-ton kettle feed bin. Excess air and moisture from drying in the mill are exhausted by a vent fan to atmosphere, the gases passing through a 7-ft. concentrator collector, where the fine dust is recovered and returned to the mill for regrinding. A damper at the inlet of the vent fan is used to control the amount of hot air taken into the mill system for drying. The roller mill has a Raymond Model 50 differential vacuum-electric feed controller, which regulates the feed according to the pressure drop through the system. To prevent the mill from clogging during drive failure, the feeder motor is interlocked with the mill motor.

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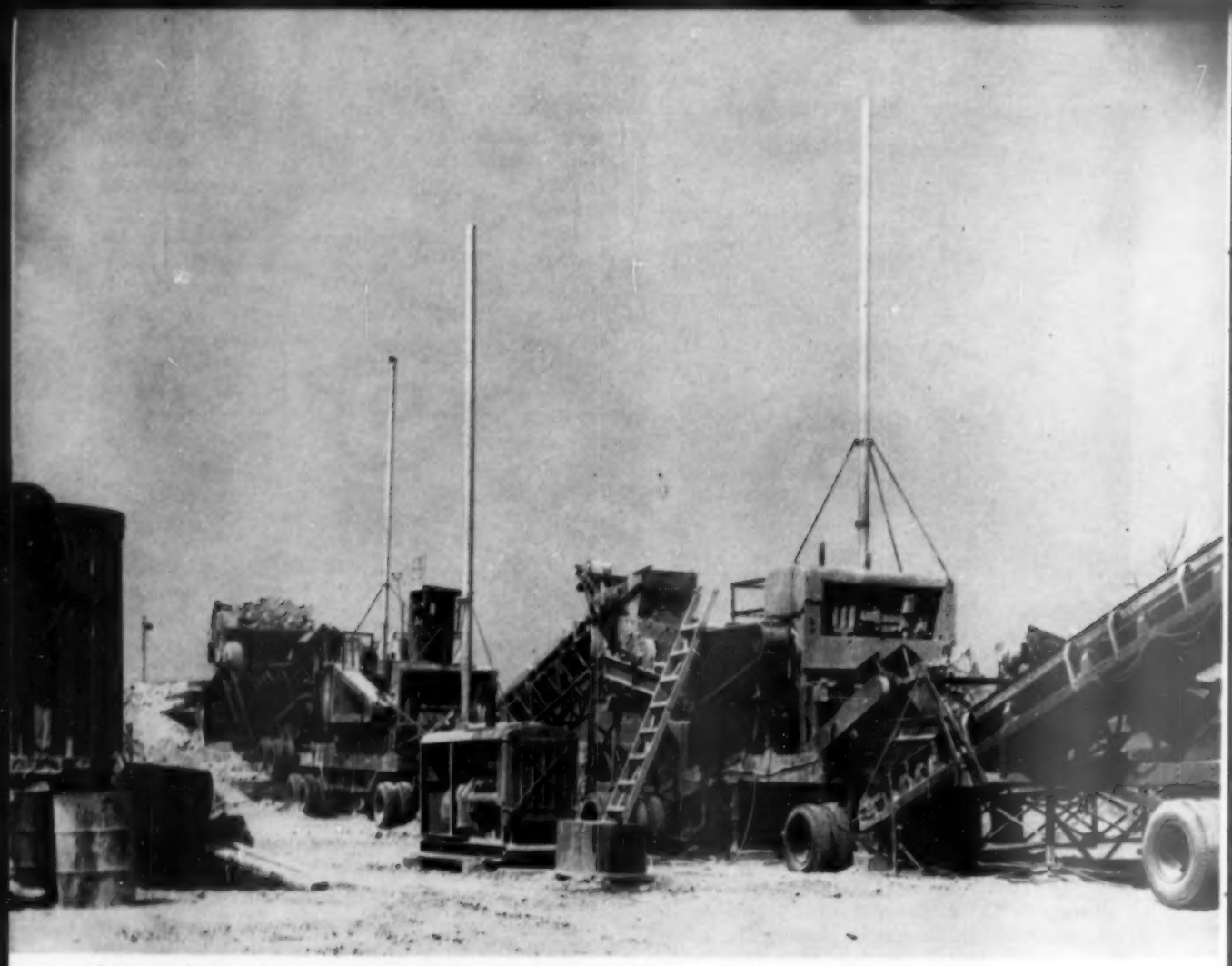


Primary and intermediate units with diesel-electric set supplying power

Kansas Plant

Sets Turnpike Crushing Record

Triple-unit Set-up Gets Production Up to 400 t.p.h. Despite High-Ratio Crushing, Stubborn Limestone and Dampness

Secondary section of plant and the truck loading hopper at far right

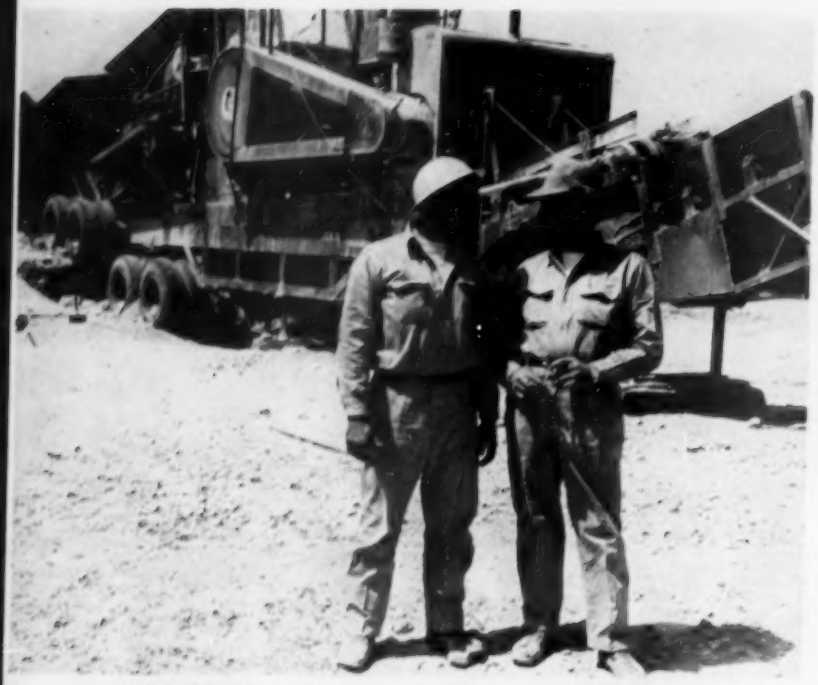
A KANSAS TURNPIKE crushing-plant operator and his son set a new record for crushing stone on that job. They bet on their combined capability and a firm belief in a triple-unit setup to outstrip competition in a head-to-head start. And they won. Output at their plant reached 100,000 tons while a neighboring producer was running up 65,000 tons. Up to that time, the plant nearby was regarded as one of the most efficient on the Turnpike.

J. D. Thomas, who operates the plant near Udall, Kansas, is respected for his ability to coax extra tonnage from equipment. He and his son run the crushing plant for T. L. James Co. of Ruston, La. and R. W. McKinney of Nacagdoches, Texas. Those two companies bid together and got a 580,000-ton assignment for sub-base rock, crushed stone base course rock, and asphaltic concrete aggregate production.

Acceptable rock was so scarce in the area that the pit was located 25 miles from the Turnpike. Because of this, about 50 percent of sand will be used, reducing the crushing assignment to about 290,000 tons. The stone processed is solid limestone, which is soft and damp.

Thomas slowly gathered what auxiliary equipment he needed to move and service the basic three-unit crushing plant that forms the setup. A supercharged ME-122 Murphy diesel is used for a horsepower edge. Conveyor belts are hopped up for speed. Pulleys have been reduced in size at strategic points and extra high-strength drive belts match the strain. The 30-in. belts run full and throw rock a foot in a straight line past their head-pulley points.

Lightweight aluminum intake pipe extensions reach 16 feet up into clean air above the dust level. That saves wear and tear on engines. The primary jaw unit has been jacked ahead of the feeder to boost usable grizzly area by 50 percent . . . im-



Left to right: W. E. Thomas and his father, J. D. Thomas, who jointly supervise plant

Progressive stone reduction, from apron feeder through final sizing screen in far background

Augur type drill which puts down 4-in. diameter holes

portant in wet material. The operator's control house near the jaw crusher is mounted so the plant operator can see the Dumptors as they come in with raw material, the feeder, and all equipment through the intermediate and secondary plants to the surge bin.

The plant at Udall originally consisted of a pioneer 153PRL primary unit and a 154VE secondary plant. The primary unit had a 30-ft. long 36-in. apron feeder and a 30-x 42-in. jaw crusher for primary reduction. The secondary plant used a 54-x 24-in. double-roll unit for secondary reduction, and a double 4-x 12-ft. vibrating screen deck for sizing. This two-unit plant was sent to the Ohio Turnpike during the construction season of 1955. Thomas moved it 1000 miles to set up in Kansas during the winter of 1955-56.

Kansas rock is considerably different from that in Ohio. It is softer, has more moisture content, and is solid limestone. In Ohio, alluvial gravels were found in many places. It is necessary to crush and size every single piece of Kansas limestone. For this reason, the ultimate in crushing and screening flexibility was suggested in the form of a Pioneer 120JSE Intermediate plant. This was purchased and placed in the line between the main primary and secondary components.

According to Thomas, this intermediate plant has one of the best designed, shockproof vibrating screens he has seen as a production model off the assembly line. Because heavy input and shock loads were such a factor on the Kansas Turnpike limestone, the plant was equipped with Mesabi-type screens with spring suspension mounting rather than rigid frame mounting. The screen system of this unit has handled the entire input without permitting frame stresses or breaks to develop. The spring mounting has been highly effective.

The old has been combined here with the new. The 120JSE intermediate plant was equipped with a 15-x 36 in. Pioneer jaw crusher which McKinney had used more than 20 years ago. Also, a stacker conveyor connecting the 153PRL primary with the intermediate plant was one that Thomas first used over two decades ago.

"Rock crushing equipment is like a fishing line," Thomas said, "It's not the fish that breaks the line. It's the fisherman. Pay attention to the stress points on a rock plant and your stone production line won't break, either."

Efficiency in mining is the watchword at the Udall plant. Only three drillers are being used to handle the entire explosives job ahead of a 2½-cu. yd. power shovel. They found that one auger-type drill rig would sink 4-in. diameter holes at 3 f.p.m. So, just one machine has replaced two and three wagon drills used on some of the other contracts. The three-man crew includes a driller, his helper, and a powderman. Holes drilled during the day are loaded in late afternoon. They're shot that evening after the plant shuts down. Input of broken material is handled by a 2½-cu. yd. shovel and four Dumptors.

The 6-x 14-ft. staggered drill hole spacing has reduced secondary breakage to an absolute minimum, and the 30-x 42-in. jaw crusher in the primary is handling the same material the 2½-cu. yd. shovel loads.

Grizzly area was increased to about two feet of usable space. This was done by jacking the primary jaw ahead and leaving the apron feeder where it was. It's been important because late winter and spring crushing has seen some wet material. Thomas has arranged his shooting so that several days' supply is out ahead at all times. The broken material can dry somewhat. Sun and wind drying always gives the primary crusher an extra productive edge.

The 30-x 42-in. Pioneer crusher is driven by a 175-hp. diesel, and only the 5-in. plus fraction goes through the jaws. A 5-in. grizzly drops and bypasses the finer material under the jaw. Speed of the loading conveyor connecting this unit to the intermediate plant has been raised 35 percent over normal, to get the broken material out quickly.

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New Lightweight Aggregate

How Trulite Is Made From Coal Refuse

On Updraft Traveling-Grate Stoker

By KENNETH A. GUTSCHICK

A NEW MANUFACTURED LIGHTWEIGHT AGGREGATE which is lighter than coal cinders has recently been developed by Trulite Corp., Ceredo, W. Va. Trade-named Trulite, the products weigh only 1250 lb. per cu. yd.; and concrete block (8-in. equivalents) made with the aggregate weigh only 26 lb., yet test over 1000 p.s.i. The product is made through a unique process developed by C. N. Howard, company president, in cooperation with the Bureau of Mines. The process involves burning coal refuse on a 10- x 35-ft. traveling grate stoker at 2500 deg. F., after which the resulting cinder cake is cooled, crushed, and sized prior to shipment.

The plant is located along the Ohio River adjacent to the modern coal preparation plant of Truax-Traer Corp.; the property is leased from the coal firm. Raw material is reclaimed from a large settling basin containing more than 1,500,000 tons of coal washery refuse (called "gob"), which has been accumulating since 1948. This material contains 45 percent combustibles (half of which is carbon, half volatiles) and 55 percent shale and clay, roof slate, etc. Due to its high carbon content, the material is free-burning; and in this sense the Trulite process is contrasted to burning clay or shale on sintering machines, where about 10 percent coal is added to the feed to effect complete sintering.

Investigation to find uses for this washery refuse was initiated by Truax-Traer several years ago, with Mr. Howard, then plant engineer for the company, assigned to the project. Initial experimentation carried on by the company involved rotary kilns and down-draft sintering machines. Later, research was conducted at the Combustion Research Station of the Bureau of Mines in Pittsburgh, Penn., using updraft travelling grate stokers. The latter process proved to be the most successful for this type of material. Late in 1954 Mr. Howard formed the Trulite firm, and a 3 t.p.h. plant was constructed and placed in operation during the summer of 1955, producing 22,000 tons per year. Presently the company is increasing output by 12 t.p.h. through installation of a 26- x 35-ft. stoker and related equipment. The cost of building the initial plant was $150,000.

Many automatic features are incorporated in the Trulite plant, making one-man operation a possibility (a crane operator and a clean up man are also required for truck or car loading, etc.) Recovery of material from the settling basin is by means of a slackline excavator having both manual and completely automatic controls. Plant facilities are compactly arranged, with controls for operating the excavator, conveyors, screens, crushers, pelletizer, dryer, stoker, and fans centralized on a

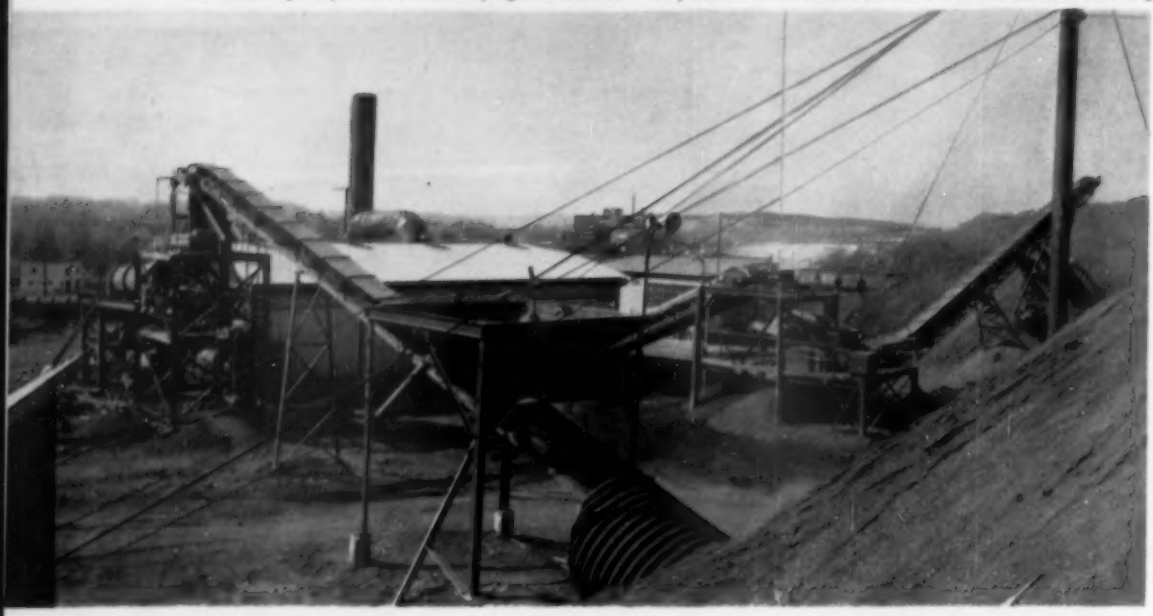
Clinker cake dropping off travelling grate to apron conveyor

panel board. The control room also contains numerous instruments and recording devices used to govern operations. Of major importance is a 16-point strip chart recorder for indicating temperatures throughout the stoker and ancillary equipment. Other features concern the use of dual fluid motors to drive the stoker grates and variable speed drives for some of the major equipment.

In the pit operation, coal refuse is reclaimed from the settling basin by a 1½-cu. yd. Sauerman shifting crescent drag scraper powered by a three-drum hoist. Material is recovered near the receiving end of the basin, where the deposit is 45 ft. thick (at the far end it thins to only 15 ft.). The drag scraper operation is two-stage, involving first the transfer of the (moist) material about 300 ft. to a drying area, followed by delivery of the (air-dried) material about 300 ft. to a surge pile, under which is a reclaiming hopper and tunnel belt conveyor feeding the plant. The first operation is controlled manually from a station flanking the storage pile. Through use of a rapid shifting bridal system, the operator can reclaim material over a span of 300 ft. (which is the spacing of the

C. A. Grace, vice-president, and **C. N. Howard,** president, holding samples of Trulite aggregate

Trulite plant, taken before drying chamber for raw pellets was installed. Stoker is housed in steel building



Close-up of 1½-cu. yd. drag scraper bucket bringing air-dried coal washery refuse to surge pile

guyed bridal towers) and deliver it to the central drying point. The second operation, which involves inhaul and backhaul movements only (not shifting), is entirely automatic, the crescent scraper being controlled by push button from the central plant control console. The start button is pushed once, and recycling occurs automatically.

Automatic operation is made possible by two sets of geared limit switches mounted on each of the inhaul and backhaul drum hoists. (The third or shifting drum hoist does not require limit switches, due to manual operation.) One set of limit switches controls the scraper movement from drying area to surge pile; the second set, acting as a safety device should the first set fail, prevents the scraper from being pulled into the sheave mounted at the central guyed mast at the discharge end or against the bridal frame and sheave at the reclaiming end. Westinghouse Rotochambers are used to operate the drum clutches.

In the plant operation, coal refuse is pulverized and pelletized, and the pellets are dried and sized to ⅜- x ⅛-in. before being fed to the travelling grate stoker. The material is first reclaimed from the steel hopper under the surge pile by a rotary table feeder, and delivered to the crusher—a Wil-

liams No. 215 reversible impactor—by an inclined 14-in. belt conveyor, 115-ft. centers. The table feeder has a Reeves vari-speed drive which is controlled from the central push button station. Both the reclaiming conveyor and hopper are housed in Armco corrugated steel liner—a 6-ft. dia. section serving the former and a 10-ft. dia. section, standing on end, housing the hopper. A Homer perma-magnetic head pulley on the primary conveyor removes tramp iron. The impactor, driven at 1800 r.p.m. by a 30-hp. motor, reduces the coal refuse to 80 percent passing ⅛ in., which is then fed by drag chain conveyor to a 4- x 15-ft. drum pelletizer.

The material pelletizes readily with the addition of 10-12 percent water. The pelletizer, driven at 10-30 r.p.m. by a 7½-hp. motor through a Reeves vari-speed drive, is rubber-lined to keep the material from sticking. The lining consists of longitudinal strips of ⅛-in. rubber gasket material held in place between strips of ¼- x 2-in. steel.

After pelletizing, the material drops to a hopper, from which it is carried on a 24-in. variable-speed Cambridge woven wire belt conveyor, 22-ft. centers, through a drying chamber. The purpose of drying is to harden the pellets so they can be later sized on a vibrating screen. The dryer consists of a preheating section and a drying section, with temperatures in each section running 200 and 800 deg. F., respectively. Heating is necessarily gradual so that the pellets will not explode. Hot air for drying is supplied through a duct from the stoker by means of a 10-hp., 10,000 c.f.m. fan mounted at the discharge end of the dryer; the air is tempered with cold air to maintain an optimum drying temperature. A steel stack exhausts gases from the preheater section.

The dried pellets are sized to ⅜- x ⅛-in. on a 3- x 6-ft. Allis-Chalmers Aero-Vibe double-deck screen, with oversize and undersize particles being recircuited by a 14-in. belt conveyor to the impactor. The stoker is fed from a surge hopper by a 14-in. belt conveyor, 16-ft. centers, which is swung through a small arc to distribute the pellets evenly across the stoker width. The conveyor, mounted on casters, is pivoted automatically by means of a double-thread bar.

The stoker is the Coxe travelling grate type, manufactured by Combustion Engineering, Inc.; it was made by combining two 17½-ft. grates to make a 10- x 35-ft. unit. The grate assembly is driven at both head and tail shafts through double worm gears, the prime mover at each shaft being a Dennison TMB-12 hydraulic motor. The two motors in turn are driven by an oil pump having a 5 hp. variable speed drive. This type of drive was chosen to divide the power load to each drive shaft equally. The speed of the grates can be varied from 0-1 f.p.m. by controlling oil flow with a throttle valve.

Concrete stave silos and rim grinder being added under current expansion program which will increase capacity by 12 t.p.h. Clinker stockpiling conveyor is in foreground

The ignition hood, specially designed by A. P. Green Fire Brick Co., has a 9-in. monolithic lining of Green Super Hybond, which is a special plastic refractory made from superduty fire clay. To start the burning operation the ignition hood temperature is first brought up to 1600 deg. F. by means of a wood fire and an oil torch directed on the refractory lining. At this temperature the pellets are fed, and the process is self-sintering from then on, the firing temperature being 2500 deg. F. The clinker bed varies from 6-8 in., the thickness being varied by a ratchet-operated adjustable gate. In its travel over the length of the stoker, the charge is burned progressivley downward, until at the discharge end, it is completely burned to form a fused clinker cake. Progressive burning is effected by a 40,000 c.f.m. fan (40-hp. drive) which supplies air through six windboxes, the air being blown up through the stoker bed. At each windbox there is a manually-operated damper to control air pressure and temperature. Gases are exhausted to atmosphere through a rectangular stack lined with insulating fire brick.

To insure quality control and attain burning efficiency, temperatures are taken at various stages in the burning operation and recorded on a Brown 16-point strip chart recorder mounted in the control room. These include the ignition arch, six locations along the stoker, the stack, inlet and outlet of dryer, and furnace fan. Other measuring devices mounted at the control panel include recording tachometers for the stoker grate and

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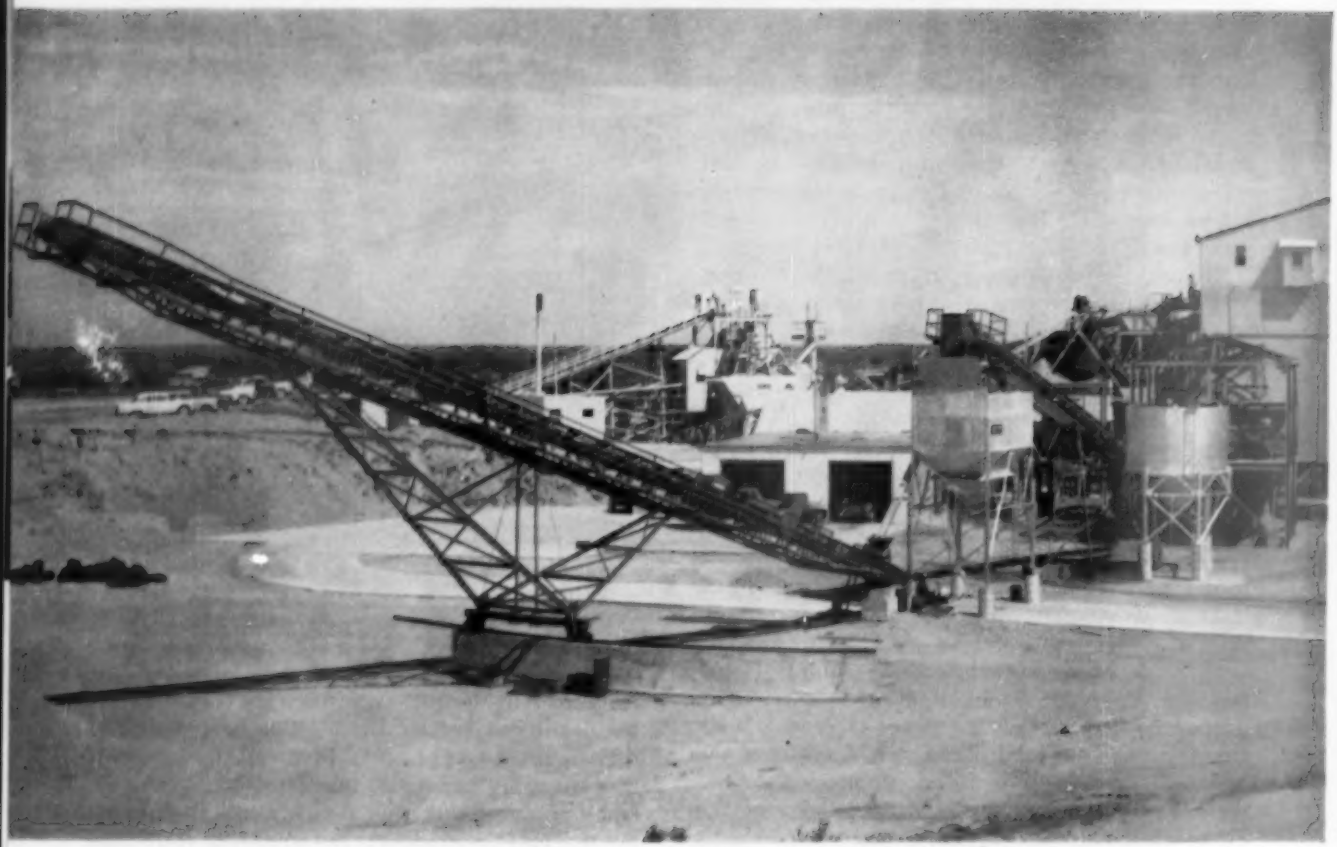


This Plant Cut Non-Spec To 2% in Products

HMS Process Reduces Objectionable Material from 15 Percent. Result—More Salable Products

Ray C. Killins, president (right), and **David A Killins II,** secretary-treasurer

Overall view of plant showing stacker conveyor in foreground, heavy media unit and sand and gravel plant to the rear, and to the left, the ready-mixed concrete plant

By GEORGE SCHENCK

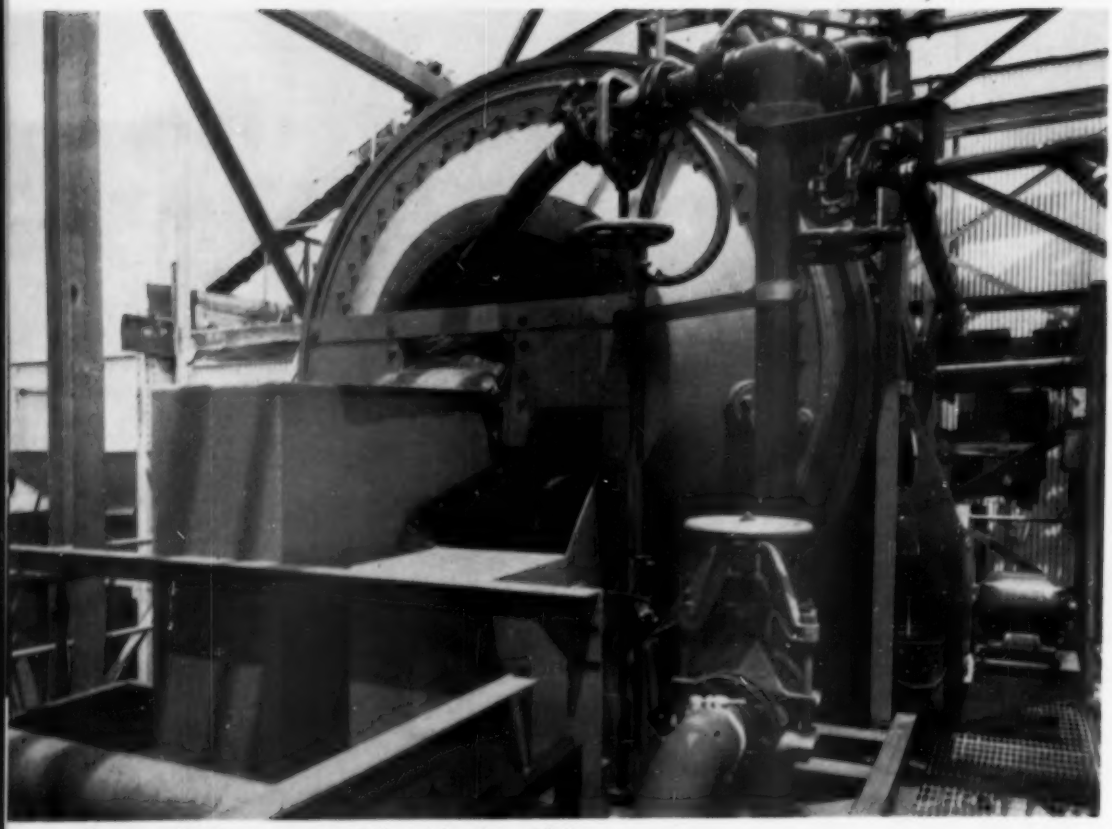
Gravel

HEAVY MEDIA SEPARATION at Killins Gravel Co., means more salable products for the company and better concrete in the Ann Arbor, Mich. area. Undesirable stone in the finished products has been reduced to 2 percent from a previous average of 10 percent. This means that all coarse concrete aggregate (sink) now exceeds in quality the most rigid state specifications. The undesirable stone, which is floated off by the dense medium of the process, is marketed for use where its poor weathering characteristics are unimportant.

The company was founded in 1918, when a dry screened product was marketed; in 1920 the plant was converted to wet washing and screening. Through the years Ray Killins, president, kept pace with the best practices in sand and gravel production. Realizing the vast potential of ready-mixed concrete, it was added as a product in 1948. Some 700 cu. yd. per day is now produced in season.

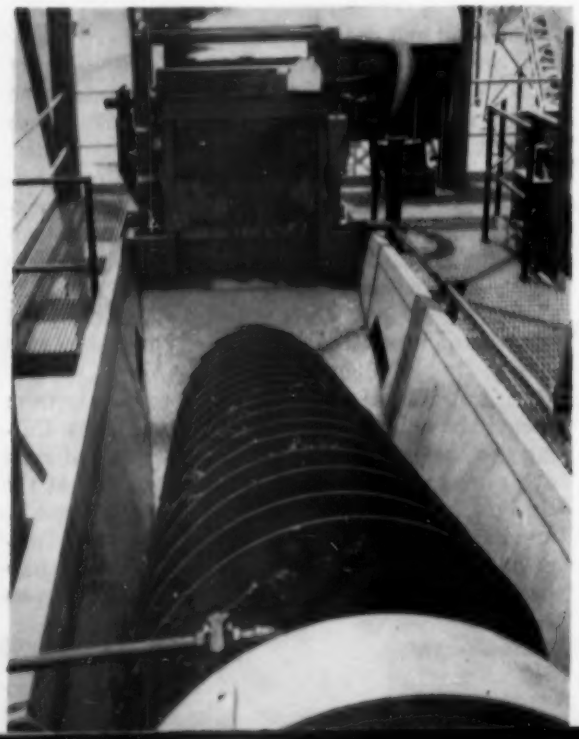
The sand and gravel deposits in southern Michigan are glacial in origin and contain a relatively high percentage of chert, shale, and sandstone (ROCK PRODUCTS, August, 1956, p. 175). These materials are weak and tend to absorb moisture. The absorbed moisture causes expansion on freezing, often resulting in spalling of concrete if significant amounts of deleterious material are included in the aggregate. This undesirable stone is less dense—has a lower specific gravity-than sound stone. Heavy media separation takes advantage of this characteristic and floats off the unwanted stone.

Several pits are operated with production from them balanced to meet the needs of the plant. During peak seasons about 2000 tons per day of sand and gravel are dug. Coarse feed is produced at the Scio pit, where a Marion dragline loads pit run to a grizzly surge bin. A Telsmith reciprocating feeder discharges material onto a string of three Barber-Greene portable conveyor belts. Their use gives



Heavy media drum separator followed by 6- x 16-ft. vibrating screen with a divider plate to separate sink and float products

Spiral densifier and magnetic drum separator used in cleaning and dewatering media

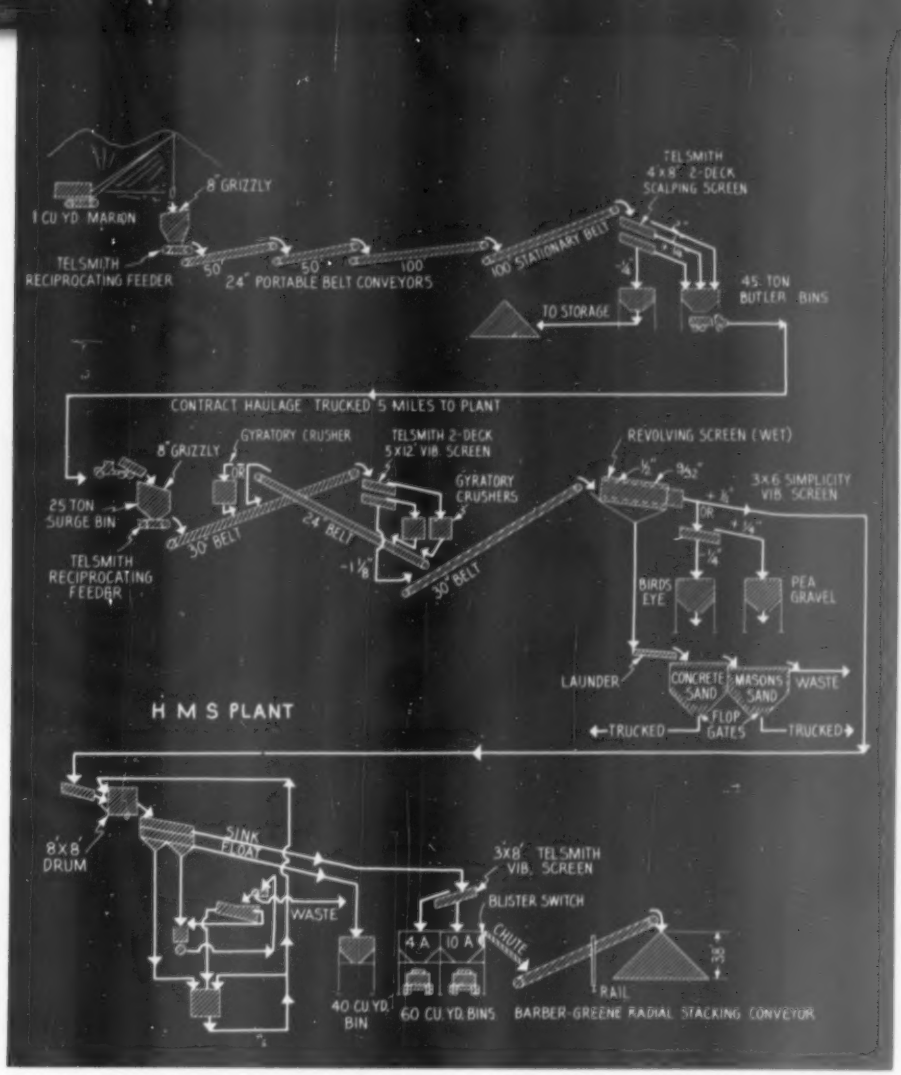


the dragline freedom in loading in any section of the pit. A permanent belt conveyor completes the series that lifts pit run material to a two-deck vibrating screen 55 ft. above the surge bin. The screen first scalps off all plus 2-in. stone to permit more efficient screening of the smaller fraction. Plus ½-in. gravel is combined with the plus 2-in. gravel in a 45-ton Butler bin. A similar bin receives the minus ¼-in. sand that is stockpiled by truck for future use. Plus ¼-in. is trucked, by a contract hauler, five miles to the plant.

A pit near the plant contains a high percentage of well-graded sand that is loaded directly into trucks for delivery to the plant. Some material is obtained from the Seyler pit, about two miles distant. All pits are operated by Killins Gravel Co. even though they don't own Scio and Seyler.

Uniform feed to the plant is maintained by selective dumping of trucks into a 25-ton grizzly hopper at the plant. The crushing circuit is standard, using gyratory crushers to reduce oversize.

After crushing, feed is split and water is added immediately in front of two revolving wet screens that wash and size the gravel. All washed plus ½-



Flowsheet of operations in pit, sand and gravel plant, and heavy media separation plant

in. material goes to the HMS circuit along with most of the minus ½- x ¼-in. material. Some of this smaller size is screened on a 3- x 6-ft. Simplicity unit to produce pea and birds-eye gravel. Wash water from the revolving screens is carried by a launder to tanks where concrete sand and mason's sand settle.

Water for the plant comes from a company owned 15 acre lake, pumped by a 175-hp. 1500-g.p.m., centrifugal unit. Fines in the washing circuit feed are 17 percent through 50 mesh and 2 percent through 100 mesh.

The Wemco heavy-media separation plant is a package-type prefabricated unit called Wemco Mobil Mill. It comes equipped with all necessary assemblies and is capable of cleaning 1200 tons per 8 hour day. The operator said that approximate start-up and shut-down time each day amounted to 30-min. and 15-min., respectively. The plant operates at a specific gravity of 2.50 ± 0.02. Since fines in the HMS circuit materially increase medium loss, HMS feed is re-screened on a 4- x 14-ft. Simplicity screen with ¼-in. slot type mesh. The plus ¼-in. gravel then goes into an 8- x 8-ft. drum separator, which revolves at 2 r.p.m. Material flow through the drum takes about 15 seconds, during which time separation occurs. Periodic checks on specific gravity are made by the operator. It takes about 30 seconds to make each check. He weighs a sample of medium pulp on a direct-reading Marcy scale. This sample is taken near the drum separator, below the media reclaiming screen.

If the specific gravity is below the desired range, the operator may lower the densifier spiral and increase the amount of medium fed to the media-return tank. Or, he may add medium from stockpile directly into the media-return tank. The first

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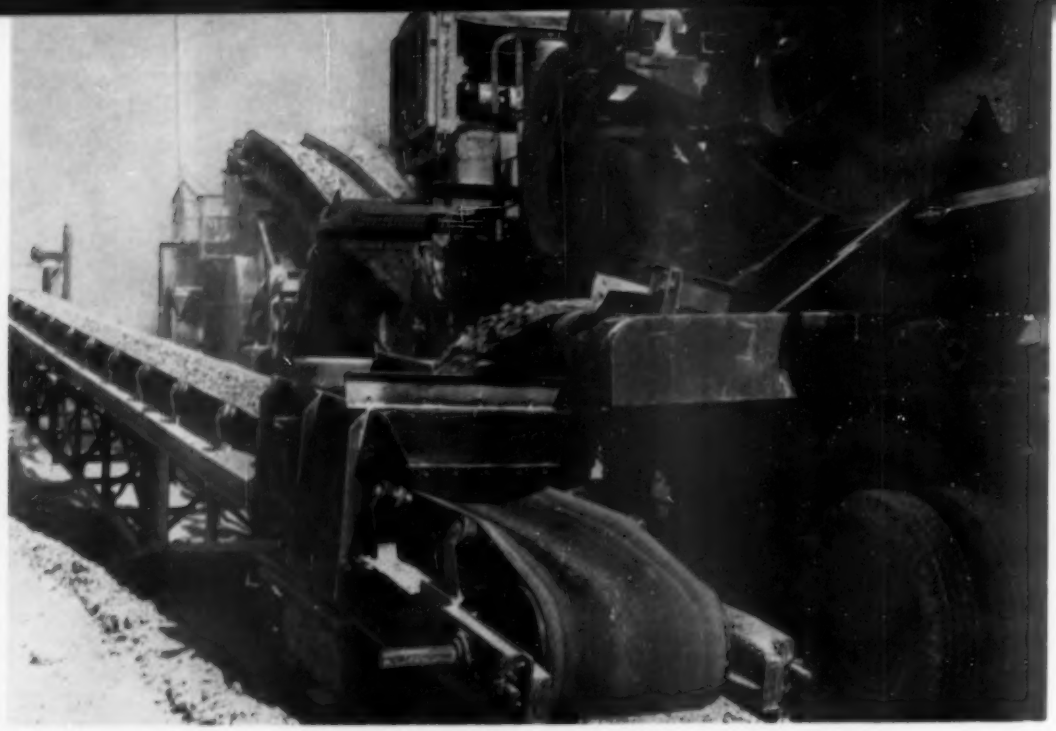

Newest component is the intermediate plant which combines a screening system with a jaw crusher

Kansas Turnpike

Continued from page 69

Overall view of plant from the surge bin end shows that plenty of access is available around each unit

At the intermediate plant, a 4-x 8-ft. Mesabi-type two-deck vibrating screen takes the entire input on a top deck equipped with 5-in. mesh. This screen also has a 2-in. bottom screen deck. Retained material on the top scalping deck drops through to the 1536 jaw crusher, then to the conveyor feeding the 154-VE secondary. Material retained on the 2-in. mesh joins the 15-x 36-in. crusher throughs. Because of a 3½-in. jaw setting to take care of flat and long rock fragments, throughs are ground fairly fine. Material through the 2-in. mesh in the intermediate unit passes to the sand screen. From there, it goes to a stacker belt leading to the 21 cu. yd. Pioneer surge hopper, where trucks take their loads. The sand belt was reversed on this intermediate unit, so that total material flow would be out of one side of the setup.

This leaves only the 1536 throughs and the fraction retained on the bottom deck of the intermediate plant to be crushed and screened. The material passes over a 36-in. feed conveyor to the 5424 double-roll unit on the 154-VE secondary plant. This plant also has an efficient screening system. It consists of a 4-x 12-ft. double-deck screen, each deck using 2-in. mesh. Material flow can be regulated by using an adjustable baffle to split the feed evenly over both decks. These screens are arranged in closed circuit with the double-roll crusher.

A field change was made to the legs on the surge bin to give better clearance. At present, plant out-

Please turn to page 120

250-300 TONS HOURLY

of ⅞" or 1½"—crushing hard and abrasive trap rock

(above) 5-ft. x 12-ft. Heavy-Duty Scalper; 489-S and 48-FC Coarse Bowl Gyrospheres

(below) 5-ft. x 12-ft. Vibro-King Screen; 48-FC Medium Bowl Gyrosphere Crusher

with TELSMITH EQUIPMENT

in the plant of NELLO L. TEER

● This quarry plant, at Savage, Maryland, is owned and operated by Nello L. Teer, of Durham, North Carolina, a long-time user of Telsmith in other plants. Crushing hard and abrasive trap rock, this plant's product is mostly used for black top. When producing minus 1½" material, average capacity has been between 270 and 320 tons per hour; producing minus ⅞", the average is 240 to 270 tons per hour.

Send For Bulletin 266

TELSMITH Equipment in this Plant:

42" x 14' Heavy-Duty Apron Feeder (top right) • 36" x 6' Plate Feeder (under surge pile) • 489-S Gyrasphere Crusher • 5' x 12' 2-deck Heavy-Duty Scalper • 48-FC Coarse Bowl Gyrasphere Crusher • 5' x 12' 3-deck Vibro-King Screen • 48-FC Medium Bowl Gyrasphere Crusher • Five conveyors—three 30", one 24" and one 18" wide.

Q-33

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PLANT for Otisville Sand & Gravel Co.

Overall view of the Cuddebackville, N. Y. plant of OTISVILLE SAND & GRAVEL CO. showing arrangement of crushers, screens and conveyors.

Send for Bulletin describing KVS Machinery and Equipment

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KVS, 30" x 42" overhead eccentric Jaw Crusher in operation.

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- Pulverized Coal Firing Systems
- Steam Generators
- Asbestos Plants
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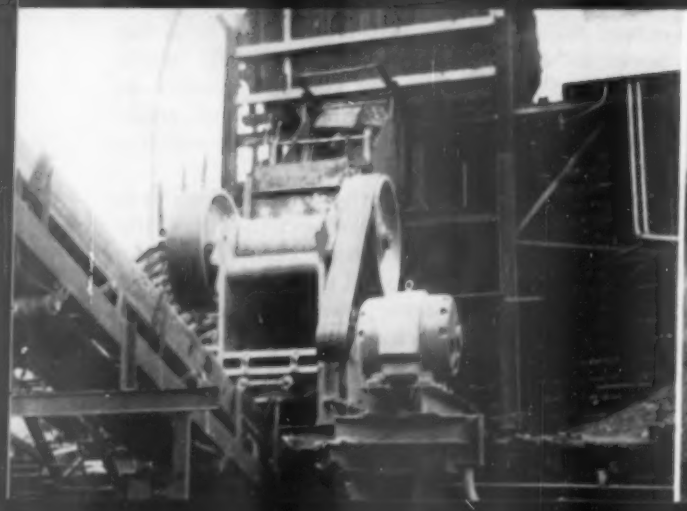
- Complete Cement Plants
- Complete Aggregate Processing Plants

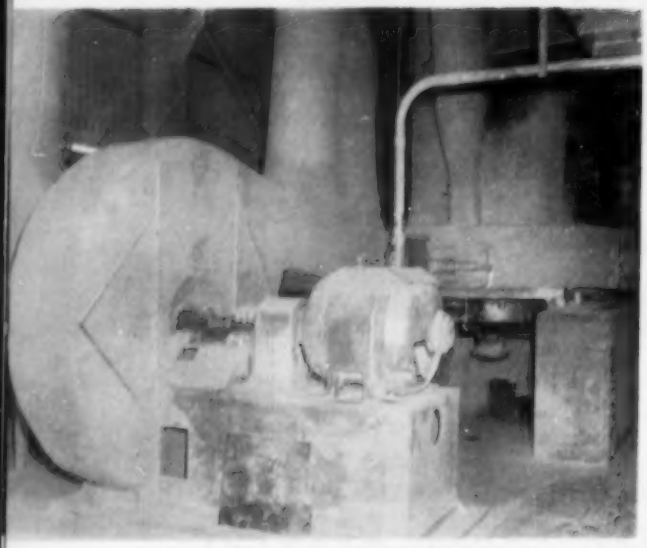
KVS 30" x 42" overhead eccentric primary stage Jaw Crusher and feed hopper . . . Otisville Sand & Gravel Co.



KVS 30" x 42" Primary Crusher and feed hopper arrangement, Cuddebackville plant, Otisville Sand & Gravel Co.

Celotex

Continued from page 65



Above: *High side roller mill and exhaust fan which draws ground gypsum through whizzer separator*

The new Ehrsam kettle is a steel-jacketed unit holding 15 tons and is fed by a twin screw conveyor. It is lined with a combination of refractory brick and monolithic refractory castables, and has a gas-fired Webster burner with Minneapolis-Honeywell controls. After calcining, the stucco is dumped to a hot pit at 340 deg. F. During calcining the material is agitated by a conventional paddle which is driven at 20 r.p.m. by a 25-hp. motor. A steel bin is provided to drain partly-calcined material from the kettle during emergency; this material is returned to the kettle by a screw conveyor. The hot pit is hopper-bottomed and is drained through four gates to a screw conveyor.

Stucco goes direct to the wallboard plant or may be tube-milled for use in hardwall plasters. For the latter, two 6- x 15-ft. tube mills with 200-hp. drives are used.

The conveying system in the new mill building consists of three bucket elevators and several enclosed screw conveyors. The elevators and main screw conveyors are mounted side by side for interchangeability. Two of the elevators handle stucco from the two mill buildings, transferring the products to screw conveyors serving the tube mills or the wallboard plant. The third elevator handles tubed stucco. The conveying system is vented by a cyclone dust collector.

Individual 24-in. conveyors, 258-ft. centers, are used to transfer the stucco and tubed stucco from the screw conveying system in the new mill building to the respective bins in the wall board and packing plant. A totally enclosed 30- x 60-in. Rotex screener ahead of the stucco conveyor serves to scalp tramp metal from the feed.

In the wallboard plant a master-mixer screw conveyor is used to feed the Ehrsam pin mixer ahead of the wallboard machine. Principal ingredients include stucco, starch, fiber, potash, ground gypsum block, with perlite and glass fiber being optional. Proportioning is done on a volumetric basis, although materials are weighed regularly for quality control. Individual feeders are driven by Reeves or U. S. variable speed drives and synchronized with the belt speed of the wallboard machine.

Stucco is delivered from three 300-ton bins to the master conveyor in the following manner. Two reversible drag chain feeders serve each bin, each feeder discharging to one of two parallel screw conveyors. Each screw in turn discharges to a bucket elevator, which feeds a constant head tank over the master conveyor. Overflow is returned to the stucco bins. Fiber is produced in two variable-speed Buffalo hammermills which is fed from rolls by variable-speed feeders. Each hammermill circuit incorporates a fan and cyclone collector, the shredded pulp dropping to a bin over the master conveyor. A gypsum block grinder, also with a variable speed drive, supplies pulverized material, which along with potash, serves as an accelerator.

The pin mixer consists of a primary section where water is added and a secondary section where foam is added to lighten the board. The soap preparation circuit includes a mixing tank, cup feeder, and a foam generator. Slurry is discharged from the pin mixer to the board machine.

After passing through the forming rolls of the wallboard machine, the wallboard (or lath) is carried on a 57-in. x 245-ft. forming belt. Edger bars and ironing plates are located at several points along the belt to produce even and uniform surfaces and edges. Following the first belt is a second 245-ft. setting belt which in turn is followed by a 90-ft. section of individually driven bronze rollers. These carry the board under an Ehrsam lath punch and an Ehrsam cut-off knife; the latter automatically perforates and cuts the board at predetermined lengths.

Between the live roll section and the Coe dryer, there is an accelerating roller section; a transfer table, the latter incorporating Turner arms for turning the board over to put the finish side up for travel through the dryer; and a return roll section. Feed to the 8-deck dryer feeder stage is by

Please turn to page 86

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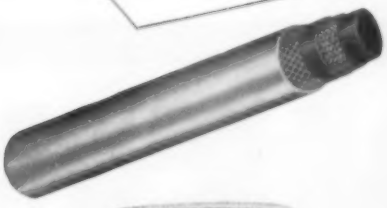
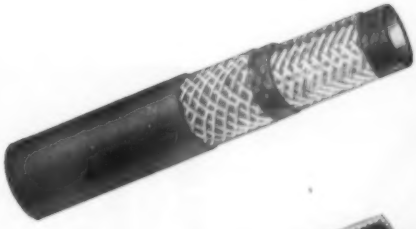


AIR Extra lightweight, highly flexible hose for heavy duty work. Resists weather damage and abrasion. Non-porous tube of oil resistant rubber compound. Rugged Neoprene cover. Ideal for almost any hose installation.

FIRE Resilient, flat-folding hose saves space and gives long service in interior fire protection. Highly flexible and resistant to cracking. Leak-proof tube bonded to strong single jacket cover. Recommended for institutions, offices, ships, etc.



STEAM Many times stronger than wrapped fabric hose for general steam-handling jobs. Also lighter, more flexible and kinkproof for easier handling. Steel wire and glass reinforcing insures extra safety. Resists high pressures up to 388° F.

WELDING No twisted, tangled lines. Two lines are securely bonded together to form a single, safe hose unit. Kink-free and resistant to welding gases. Stands up to lots of dragging across rough surfaces. Especially effective on portable welding dollies.

WATER For long wear and outstanding value, this easy-to-handle hose has what you need. Reinforced with multiple plies of high tensile yarn, it takes higher than usual working pressures. Cover stands up to weather extremes without cracking or peeling.

Save time and money. Call your Quaker-Quaker Pioneer distributor first, when you need hose or other industrial rubber products. You'll find him prompt, dependable.

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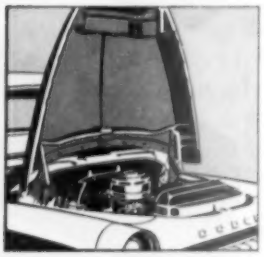
NEW COMFORT CABS

Industry's largest, for real stretch-out comfort. All-new seat design permits adjustment of back cushion and seat height, plus normal slide positioning.



FULL-OPENING HOOD

Exclusive!—Can be raised full 90° for easiest, fastest engine servicing, half-way for routine oil and water checks.

Stake models up to 21,000 lbs. G.V.W.

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DODGE

PowerGiants

- **NEW giant-power V-8 engines!**
- **NEW push-button driving!**
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- **NEW *Forward* Look Styling!**

Get set to profit from a great *new* kind of truck—with *more* V-8 power and *more* payload capacity—with *more* eager-to-go snap than any other make on the road!

From 204-hp. pick-ups to 232-hp. tandems, today's new low-priced V-8 Dodge *Power Giants* deliver more truck per dollar—and more profitable payloads—in *every* weight class, 4,250 lbs. G.V.W. to 65,000 lbs. G.C.W.

New short-stroke Chrysler-engineered V-8's—with exclusive Power-Dome combustion—give you more miles per gallon, full power on *regular* gas. Increased power in famous, dependable Dodge 6's, too.

Push-button automatic transmission is still another great plus you get only in new Dodge *Power Giants.** First in any truck! Simple, sure, trouble-free. Just push a button, shifting is automatic.

Test-drive a Power Giant—V-8 or 6—soon! Get your Dodge dealer's deal *before* you decide on your new truck.

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Tandem models up to 46,000 lbs. G.V.W.

Tractor models up to 65,000 lbs. G.C.W.

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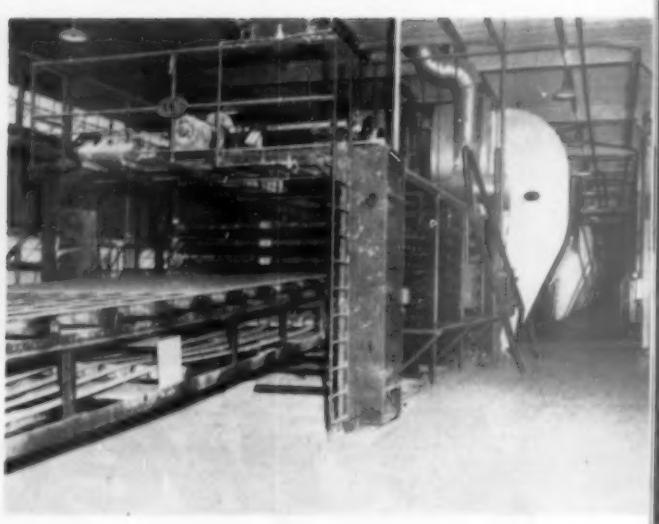
Four-tube packer for plaster. Four 150-ton bins serve packing plant; two of which are for tubed stucco, one for stucco, and one for gauging and molding plasters

Right: The 8-deck wallboard dryer is 350 ft. long divided into four zones, each zone being served by two gas burners and two fans for circulating air

Celotex

Continued from page 82



means of a Coe tipple. The 8-deck Coe dryer is 350 ft. long and divided into four zones. Each zone is served by two Maxon Series 600 gas burners and two Buffalo fans for circulating air counterflow through the dryer. One of the burners operates constantly, while the second is controlled automatically by a thermostat. Brown temperature recorders and indicators are available for each zone. Temperatures vary from 450 to 200 deg. F., from front to back. The dryer evaporates 1050 lb. of water per 1000 lin. ft. of ½-in. board, or 780 lb. for ⅜-in. board. Movement of board through the dryer is $\frac{1}{18}$ as fast as the board line travels.

At the unloading end of the dryer there is a cascade roller section that delivers the board from any deck to a breaker. From this unit, the gypsum lath goes to a Brackett lath bundling machine where several pieces are fastened with adhesive paper bearing the Celotex insignia. Before the wallboard goes to the Mereen-Johnson bundler, it is transferred to Turner arms so that finished surfaces are turned in. In addition the end edges are trimmed to exact dimensions by circular saws. After bundling, the wallboard is placed on a Rotary Lift Co. Levelator, which is used in making up large pallets for handling by lift trucks. With this device the platform lowers after each bundle is placed. When it reaches floor level, the pallet is complete. A fleet of ten lift trucks are used in warehouse operation and in loading trucks and rail cars. These include six forklifts, three high-lift tongue trucks, and one lowlift tongue truck.

The wallboard plant also has a large packing department, where all types of plaster are mixed and bagged. Key facilities include two Ehrsam paddle-type mixers, each mounted over a 4-tube St. Regis bagging machine. Each packer has a capacity of 20 t.p.h.

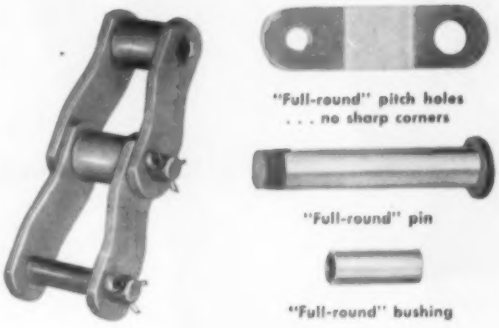
Four 150-ton bins serve the packing plant, two of which are used for tubed stucco, one for stucco, and one for gauging and molding plasters. The two latter products are made at the plant by feeding stucco to a 14-ft. Raymond air separator, the tailings representing gauging plaster (after a retarder is added), the fines molding plaster.

In the mixing operation, stucco is delivered via screw conveyors to a one-ton weigh hopper with a Fairbanks-Morse scale, which is mounted above each paddle mixer. (Actually two parallel conveyors serve the four bins, with a screw feeder from each serving one of the weigh hoppers). Retarder and other ingredients are weighed on a small beam scale and dumped into the hopper prior

Please turn to page 128

"Stress raisers" eliminated by Link-Belt LXS chain design

LXS "FULL-ROUND" DESIGN



"FULL-ROUND" DESIGN eliminates stress concentration points. Heat treatment of all parts adds even greater strength and extra wear life to selected steels. Accurate control of these processes avoids brittleness, poor wear values and low tensile strengths . . . and assures uniformity.

Large pins, bushings mean ample live bearing area for long life

For long life under severe conveyor and drive conditions, Link-Belt LXS chain provides extra strength, increased wear resistance and wider application flexibility. This fabricated steel roller chain incorporates many advanced design and manufacturing refinements, resulting in superior ruggedness and accuracy.

Eliminate weak points

"Full-round" design does away with stress concentration points most frequently subject to failure . . . provides maximum live bearing area between pin, bushing and sidebars. As a result, stress is distributed evenly, increasing chain life.

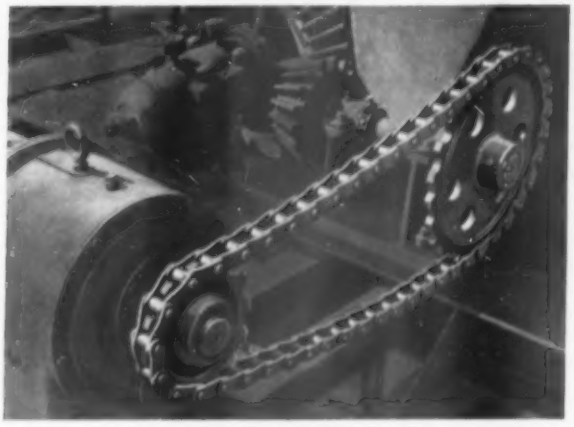
Pins and bushings are accurately sized for controlled press fit, preventing rotation in sidebars. Made from selected bar steel, sidebars are carefully machined for proper pitch hole size and for maintaining firm, tight press fit of pins and bushings. This assures close control of pitch and proper chain length after assembly.

Hardening extends life

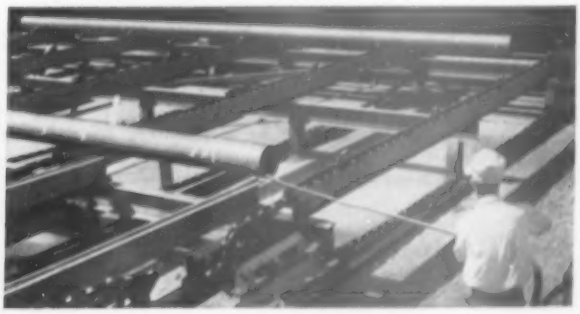
Another Link-Belt long-life extra is the controlled hardening of selected steels used in the manufacture of LXS chain. Pins, for example, are made from a tough steel, specially treated for high strength in shear and for maximum wear value. Bushings are properly hardened to shrug off shock and resist wear.

Rollers are accurately machined to assure proper operating clearances and free-rolling action. Controlled hardening gives them the necessary resiliency and durability.

LXS especially popular for exposed drives, high impacts



Link-Belt LXS chain is the long-life answer for exposed drives, abrasive and high-impact conditions. Its large, live bearing area reduces cutting action of abrasives because load is spread over a broad area.



LXS chain provides extra strength, wear-life for heavy-duty conveying

Link-Belt LXS chain has real stamina—as shown in this conveyor application for handling 1000-pound, 40-foot lengths of steel pipe. Thanks to accuracy of pitch and attachment spacing, plus close matching of multiple strands, LXS has the added strength and wear life for the extra-long conveyors so popular in today's move to mechanization.

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Overall view of new synthetic silicates plant. To the left may be seen the lime tank and in the center, background, the "dry end" tower

Synthetic Silicates

from Diatomite and Lime

By MARION L. BRIGGS

MICRO-CEL

. . . synthetics made in Johns-Manville Corporation's new plant at Lompoc, Calif., are widely used in dry cleaning, and for extenders in such products as paints, rubber, paper, fertilizers, and insecticides

THE LARGEST AND PUREST DIATOMITE DEPOSIT in the world is being put to a new use at Lompoc, Calif. For the first time synthetic silicates, manufactured from the diatomite, are being produced by a new mill of Johns-Manville Corp.

The silicates are manufactured directly from processed diatomite reacted with lime under high temperatures and pressures. Since 1928 Johns-Manville has been quarrying crude ore from the 15,000,000 - year - old marine diatom fossil beds to produce many powdered grades of diatomaceous earth under the name of Celite. The new synthetics, called Micro-Cel, are tailor-made for use as dry cleaning sweeteners, inert absorbents, bulking agents, or extenders in paint, etc.

The workable area of the Lompoc deposit extends over 3 to 4 sq. miles and reaches to a depth of about 700 ft. It is operated as a series of separate yet well integrated working quarries that supply a wide variety of crudes, each having a uniform composition for different products or for blending. For the new synthetic silicate mill, what is termed a straight "A" crude rock is used, as it is considered the best grade ore for the plant's product in relation to tolerable impurities.

In quarrying, the first step is to strip the top soil, or overburden, which runs from outcroppings to 5 or 6 ft. or more in some places. The layers of diatomite have been twisted and heaved during land changes through the centuries, so that at some points the overburden is very shallow and at others deeper, and in some areas it follows the contour of the hill.

Where the overburden is at the edge or side of a hill, it is removed by a Model D-8 Caterpillar bulldozer that simply pushes it off over the hill. In areas where it is not near the side or edge or a hill, a prong-like plow is attached to the front of the bulldozer that loosens and breaks up the overburden. A Model 5BV Euclid loader, pulled by an Allis-Chalmers Model HD-19 tractor, follows, and runs the overburden up the loader conveyor belt, which dumps it onto a 25-ton bottom - dump Euclid truck moving along at the side of the loader.

After the ore strata have been exposed, P & H electric shovels, with 4½-cu. yd. or 2½-cu. yd. dippers, dig the crude diatomite from the hills and load it onto the 25-ton bottom-dump Euclid trucks.

The trucks carry the crude ore in about a 15-min. drive from the quarry over an unpaved road constructed to the new synthetic silicate mill. Arrived at the back end of the plant, they dump the pieces of crude on natural ground at 540-ft. elevation. At this end of the mill, the land rises about 100 ft. higher than the area on

(Continued on page 90)

Hammer Life Increased 7 Times by HARD-FACING

Hammers used to crush limestone and shale remain in operation for 70 weeks now that they are protected with HASCROME high-chromium rod. Unprotected hammers are completely unserviceable after operating for only 10 weeks under the same conditions. The usual maintenance procedure is to recondition the hammers with HASCROME rod about every two weeks—after they have crushed approximately 13,000 tons.

Hard-facing proved to be the economical solution to this typical problem of severe impact and wear. Periodic rebuilding with inexpensive HASCROME iron-base rod resulted in one hammer doing the work of seven, thus saving the cost of six new hammers.

HASCROME rod is widely used to protect rock crushing and earth moving equipment because of its resistance to severe shock and impact. It is a tough alloy which work-hardens to Rockwell C-50, and doesn't chip or spall under heavy impact. The ability to resist mushrooming makes HASCROME rod an excellent build-up rod, too. It provides an excellent shock-proof base for harder, more corrosion-resistant HAYNES hard-facing alloys when severe abrasion or corrosion is the major problem.

See your local dealer for more information on the complete line of 18 HAYNES hard-facing alloys. One of them will solve your wear problem. If you don't know the location of your dealer, write to Haynes Stellite Company, a Division of Union Carbide and Carbon Corporation, Kokomo, Indiana.

See... | **Your local Haynes Stellite Dealer**

— or —

Write... | **to Haynes Stellite Company**

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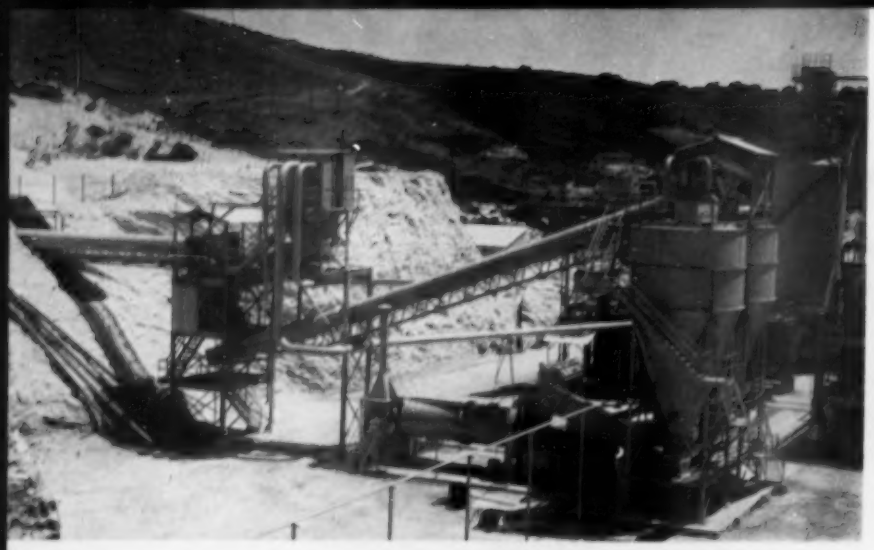


Tunnel conveyor, left, carries diatomite to primary crusher. Product of primary crusher falls to secondary crusher, below, the throughs going by covered belt conveyor to receiver bins which feed ball mill

which the plant itself stands, which is about 450-ft. elevation.

After four or five Euclid truck loads have come in with ore and spread it on the ground, a bulldozer is run over the material to crush it to smaller size, as the pieces must be no larger than 24- x 24-in. to go through the mill. Then the bulldozer pushes the crude over the side of the elevation, and it lands on top of a concrete tunnel containing two "glory holes" opening into it. This fall helps to further break up the pieces of ore.

The glory holes, through which the diatomite ore drops about 4-ft. by gravity into the concrete tunnel, are approximately 4-ft. in diameter. Internal dimensions of the tunnel are 10-ft. wide and 8-ft. high. It has a 24-in. thick concrete top, 12-in. thick concrete walls, and a floor about 8-in. thick.

After falling through the glory holes, the pieces of ore drop onto two 36-in. wide reciprocating feeders, one located under each hole. The feeders are not more than 5-ft. long. A small hopper leading from each glory hole directs the ore onto the feeders. From the ends of the reciprocating feeders, the crude diatomite drops down 3-ft. onto a 30-in. belt conveyor, 100-ft. centers. This belt, which is about 2-ft. off the floor level of the concrete tunnel, carries the ore, now varying in size from dust to maximum 24- x 24-in. pieces, to the primary crusher.

Primary and secondary crushers are located in an open structure 20- x 20-ft., and 40-ft. high. They are enclosed and ventilated, as are the reciprocating feeders and conveyor belt in the underground crude processing, in order to contain the siliceous ore dust so it will not spread out into the rest of the plant.

The primary crusher is a spike-tooth roll type that reduces the size of the larger crude pieces, and the secondary reduces the material to ¼- x 0-in. After going through the spike-toothed roll of the primary crusher, the ore falls by gravity directly into the secondary crusher below.

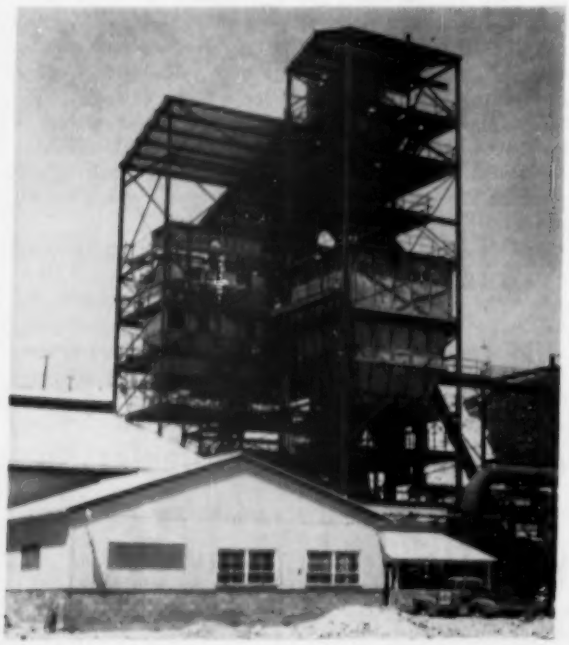
The secondary crusher discharges onto a 24-in belt conveyor that transports the ore uphill a distance of about 90-ft. to the top of two crude receiver bins. The elevating belt is enclosed in sheet metal housing to control dust.

Since the two crude bins are adjacent to each other, there is an automatic reversible shuttle conveyor to receive the ore from the elevating belt conveyor and load either bin. The bins are circular in construction, tapered at the bottom, made of steel, and are 10-ft. in diameter and 40-ft. high.

Each bin discharges onto a separate automatic weigh-feeder that controls the amount of material fed to a 24-in. belt conveyor, 18-ft centers. This conveyor moves the crude to a 12-in. screw conveyor, 6 ft. long, that feeds the ball mill.

The 16-ft. diameter ball mill is charged with 55,000 lb. of grinding media of varying sizes for further reduction. From this mill, the ore slurry goes through a vibrating screen having 100-mesh cloth that removes oversize, discharging them to waste. The slurry passing through the screen is discharged into a surge tank from which it is pumped by two slurry pumps, operated by a level controller, up to a 20,000-gal. capacity redwood tank for storage.

(Continued on page 92)



Dry-End tower, to the top of which the product of the reacted lime and processed diatomite mixture in powdered form is moved by pneumatic conveyor system

Comes in 2½", 3" and 3½" dia.—insensitive to caps, friction, shock—non-headache-producing

WHAT IT IS —"Nitramex" No. 3's a *new* blasting agent with the power of 60% ammonia gelatin—PLUS safety advantages *you don't find in conventional explosives.* It's insensitive to caps, bullets, friction and impact of heavy weights. A powerful primer is needed to detonate it—and for maximum safety, only the special non-nitroglycerin "Nitramex" No. 3 Primer is used. Consider what this means in terms of safer loading—and handling misfired holes.

WHERE TO USE IT—"Nitramex" No. 3—designed only for large wagon-drill holes—performs best in hard-shooting formations—both wet and dry work. In wet work, you can load one day and fire the next under depths of water up to 25'.

WHY—Combined with Pelletol No. 1 it has a higher loading density than any conventional explosive—AND WITHOUT TAMPING. This means more rock per foot of hole. It's easy to handle and load. Sinks rapidly in water, WITHOUT POLING—and DOES NOT CAUSE HEADACHES. Thanks to a special coupling bail, loading moves fast.

OTHER "EXTRAS"—Use either the 2½", 3" or 3½" dia.—"Nitramex" No. 3 fits the need. And it comes in sturdy 24" fiberboard tubes with sealed metal ends that stand rough handling and abrasion.

So for maximum safety and power in tough-shooting rock—order "Nitramex" No. 3 and its Primer. Another Du Pont "team" that will pay off for you! Call our man or write: E. I. du Pont de Nemours & Co. (Inc.), Explosives Dept., Wilmington 98, Delaware.

IDEAL FOR ELECTRIC INITIATION
You can thread electric caps or Primacord through tunnel of "Nitramex" No. 3 Primer. This dependable 2" x 6" primer alone will detonate the shot.

. . . OR PRIMACORD INITIATION
and each end contains a handy coupling and lowering device which assures fast, efficient loading into holes. (Device shown in photo above.)

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BLASTING AGENTS

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BETTER THINGS FOR BETTER LIVING...THROUGH CHEMISTRY

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In strip mine operation, portable loader being pulled by tractor, can handle 1200 cu. yd. of diatomite crude ore per hr. The truck moving alongside can be loaded in 29 seconds. Note that both the loader and truck cabs are fully enclosed to prevent entrance of dust

The tank is elevated about 4-ft. above the ground on concrete piers resting on a concrete base in order to allow a man to get under it to make repairs, and to prevent rotting. It is contained within the feed preparation unit described below.

In the feed preparation unit the diatomaceous earth slurry from the redwood tank is prepared for further processing. Preceding this, quicklime stored in a 200-ton steel silo located outside the feed preparation unit is fed to a lime slaker, classifier and thickener; then from the thickener pumped to a 30,000-gal. capacity slaked lime slurry storage tank.

The steel silo for storing quicklime and the slaking equipment is outdoors. The silo is about 400 to 600-ft. away from the railroad tracks that serve the plant and connect with the Southern Pacific line. Quicklime is transferred from the railroad cars to the silo by an Airveyor system.

In the feed preparation unit, there are also the necessary pumps and mixing equipment, and two additional tanks for storing diatomite slurry, with a 10,000-gal. capacity each, and two additional slaked lime slurry storage tanks, each having a 10,000-gal. capacity. Each storage tank has its own mixer.

Lime and processed diatomite, after they are mixed together, are reacted in an hydrothermal process which is automatically controlled. High temperature and pressures are used. Conditions of reaction can be varied to produce a series of end-products of similar chemical but different physical compositions.

The reacted product is dewatered, dried and pneumatically conveyed to the top of a "dry end" tower. Dispersion is accomplished in the flash-drying stage and in the pneumatic conveying system.

The "Dry End" tower is approximately 120-ft. high and covers an area of around 300 sq. ft. The product in powder form is conveyed by air to the top of the tower, where the larger particles are collected by a cyclone and the finer are removed from the air by a filter bag (dust collector).

After leaving the filter bag house, the clean air is discharged to atmosphere by a vacuum fan. The fine powder drops by gravity into an air transport line to be carried to the product filter bag house.

Meanwhile, the coarse particles of powder caught by the cyclone collector are dropped by gravity from this collector to a micro-pulverizer that reduces them to fine powder. This fine powder then joins the fine powder coming from the filter bag collector and is blown along with it to the product filter bag house. Here, the powders are collected and the air is drawn out by fan to atmosphere. The fine powders proceed by gravity through an automatic sampler, which continuously removes a representative sample. This sample is dropped down to a table where collecting bottles hold it for quality testing.

The rest of the powder falls onto a distributing conveyor that permits it to drop into one of the three steel dry product storage bin pockets, each about 2000-cu. ft. While one bin is being filled, a second is waiting for results of sample testing, and a third is emptying.

If the sample powder taken shows the powder to be of acceptable quality, it is discharged from the dry storage bin by a screw conveyor, located at the bottom of the bin pocket, to a cross screw conveyor which empties it into a plenum chamber on the back end of the bins. From this chamber, it is distributed into three steel packer aerating columns approximately 20-ft. high, that aerate the powder preparatory to packing. Two manual packers are attached to the bottom of each packer column, and to these are applied 40 or 50-lb. multi-wall paper bags.

Should the powder sample prove of unacceptable quality, the screw conveyor at the bottom of the dry product storage bin is reversed, and the powder is discharged to waste out the front of the bin pocket.

After the bags of Micro-Cel powder are cleaned and palletized, the loaded pallets are stored in the new mill's warehouse. This warehouse covers an area of around 22,000 sq. ft., and is a steel frame structure covered with corrugated transite and flexboard.

All of the equipment and all possible leakages of dust into the atmosphere are well ventilated, so protection from dust is given the employes. The dust ventilating system in the new plant can handle 40,000 c.f.m. of dust-laden air using a 75-hp. fan. Specially designed ventilating units developed by the company's research engineers have been installed on heavy duty open-pit mining equipment used at the diatomite mine, including 10 bottom-dump trucks, five bulldozers, two road graders, one electric shovel and one diesel shovel, one tow tractor and one truck crane. The bulldozers have wholly enclosed cabs provided with dust-free circulating air, which also takes care of the cooling problem. Dust counts in trucks have been reduced from as high as 54-million p.p.c.f. to as little as 2.0.

On both bulldozers and trucks, Buffalo Size C ventilation blowers supply 200 c.f.m., and similar blowers supply up to 2000 c.f.m. on the large shovels.

To promote good housekeeping, the entire plant is covered by a vacuum cleaning system of standard design with 40 hp. motor exhaust.

Kaiser Gets Safety Award

KAISER GYPSUM CO., INC., Oakland, Calif., was presented a million man-hour safety award for its Redwood City, Calif., plant by Industrial Indemnity Co. The commendation recognized the efforts of Kaiser and Industrial Indemnity safety engineers to provide safe working conditions for the gypsum plant employees. Kaiser Gypsum Co. recently received a plaque from the Gypsum Association for its exemplary record.

Industrial Sand Study

NATIONAL INDUSTRIAL SAND ASSOCIATION, Washington, D.C., advised members of the decision of the U. S. Bureau of Mines to drop the idea of transferring the industrial sand industry to crushed stone industry classification in the Bureau's annual statistical report. Members of the industrial sand industry will receive the same questionnaire from the Bureau which has been received in other years.

"Our Universal 293Q-Sr. portable crusher Saves us $2400 a day in trucking costs alone"

says Mr. Ken Smith, Vice President, Princeville Stone Company, Princeville, Illinois

"We invested in the Universal 293Q-Sr. because it was the only single unit portable plant that could give us 'big stationary plant' crushing capacity. Its outstanding production record has meant more truck loads of finished material. This, combined with the plant's portability, accounts for the savings of $2400 per day in trucking costs alone. In addition, we have stepped up our jobs 25%.

"The production speed of our Universal 293Q-Sr. astounds most of the contractors in this area. They call the crusher 'hot'. It's no wonder, when you consider the size of the basic units in this plant — a 20" x 36" jaw crusher, a 30" TwinDual roll crusher and a 4' x 12' (2-5/6 deck) screen. The jaw and TwinDual rolls combine to give us three stages of rock reduction. Actually, the plant produces capacities expected of stationary plants — yet skid mounting of apron feeder and jaw crusher makes moving fast, easy and within highway weight limitations.

"Also, the Universal 293Q-Sr. is versatile. We can quickly make screening and crushing adjustments on the spot to meet state specifications. Yes, our 293Q-Sr. represents a gilt-edged investment to us", states Mr. Walter Smith, President, Princeville Stone Company, "It will bring us dividends over the next 15 years."

As shown above, the 293Q-Sr. can be easily converted to a 293QS TwinDual Gravel King by replacing the apron feeder with a scalping screen and swivel feed conveyor.

These are but a few of the important reasons why you should consider a Universal 293Q-Sr. portable crusher . . . your opportunity for additional profits on new highway program jobs. The 293Q TwinDual Pacemaker is made in three sizes (293Q-Jr., 293Q-Sr., 293Q-Super Sr.) to meet various production requirements. Write for complete information today!

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Cement and concrete luncheon, A.S.T.M., Pacific area, national meeting. Robert Mitchell, Consolidated Rock Products Co., presided, and A. Allen Bates, vice-president, research and development, P.C.A., was the speaker

A. S. T. M., Pacific Area Meeting Discusses

New Research In Cement and Aggregates

SUBJECTS OF TIMELY INTEREST on aggregates, cement and concrete and prestressing were presented in papers before the American Society for Testing Materials, at its second Pacific Area, National Meeting in Los Angeles, Calif., September 16-21. The meeting was well attended and featured exhibits of interest to technicians and testing engineers.

A. Allen Bates, vice-president of research and development, Portland Cement Association, Chicago, was the guest speaker at the Cement and Concrete luncheon. His subject was "Research—and Some of Its Relationships to A.S.T.M." Robert Mitchell, president, Consolidated Rock Products Co., Los Angeles, Calif., was the toastmaster.

The first two days of the meeting, insofar as the cement and concrete sections were concerned, were devoted to the many committee meetings (C-1 for cement, and C 9 for concrete and concrete aggregates). The Road and Paving Materials technical session had five papers on the agenda.

At the technical session on cement, five papers were delivered. Presiding were: W. C. Hanna (Honorary member A.S.T.M., Symposium Chairman), vice president, California Portland Cement Co., Colton, Calif. assis by R. R. Litehiser (National Director, Chairman Committee C-1), chief engineer, Ohio State Highway Testing Laboratory, Ohio State Univ., Columbus, and M. A. Swayze (Past National Director), Director of Research, Lone Star Cement Corp., New York.

The papers were as follows: Alkali Aggregate Phase of Chemical Reactivity in Concrete Part II—J. A. Hester and O. F. Smith, Bureau of Materials and Tests, Alabama State Highway Department; Effect of Storage on Air-Entraining Cements—W. J. McCoy and S. B. Helm, Lehigh Portland Cement Co.; Hydrophobic Cement —U. W. Stoll, U. S. Navy CERE Lab.; Carbonation of Hydrated Portland Cement—George Verbeck, Portland Cement Assn., and Determination of Magnesium Oxide in Portland Cement by Flame Photometry—L. R. Pritchard, Lone Star Cement Corp.

A paper relating to alkali aggregates was delivered by G. G. Christiansen, California Portland Cement Co. in the absence of either author. The paper was Part II and the following conclusions are more directly related to this second part of the series. 1. The reaction between alkali and reactive aggregate is greatly aided by the regeneration of the alkali by lime. 2. Reactivity between comparatively low alkali concentrations and certain types of reactive aggregate will proceed under conditions favorable to the reaction. 3. From a controlled set of mortar bars, that were allowed to react for a period of 46 months, analysis showed that the total acid soluble silica in each bar varied directly with the alkali content and the total expansion. 4. By the addition of controlled amounts of certain types of finely divided silica, it is possible to reduce or even eliminate expansion in concrete due to alkali aggregate activity.

The paper, "Effect of Storage on Air-Entraining Cements," was delivered by one of its authors, W. J. McCoy. This subject was introduced by reference to a previous study of the effect of storage on the properties of portland cement. Results of tests on samples of Types I, IIA and IIIA portland cement stored under various conditions for periods up to 5 yr. were reported. The effect of time and condition of storage on air content, ignition loss, specific surface and free lime results was determined at intervals during the 5-yr. period. These tests show that storage of cement does not cause any significant change in the above properties, or the setting time, or compressive strength if the cement is properly stored so as to prevent any reaction with moisture or carbon dioxide as would be shown by no appreciable change in the ignition loss.

The paper on hydrophobic cement developed that resistance to atmospheric deterioration of fresh portland cement can be increased through the use of small amounts of interground oleic acid. The authors said that laboratory tests demonstrated that the

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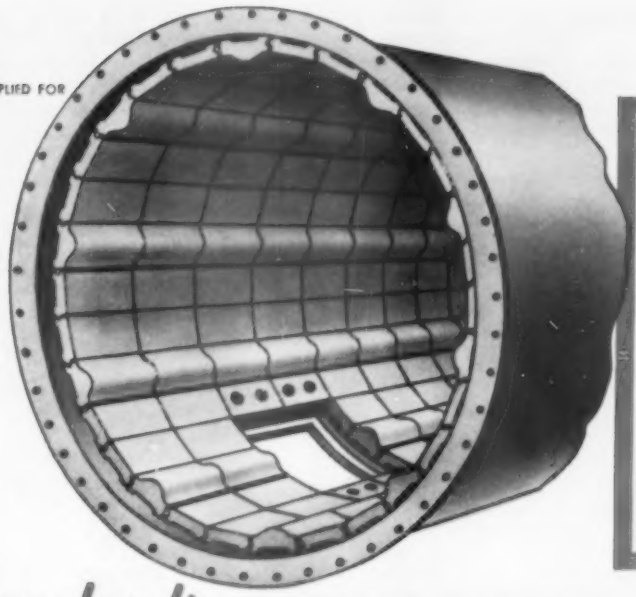

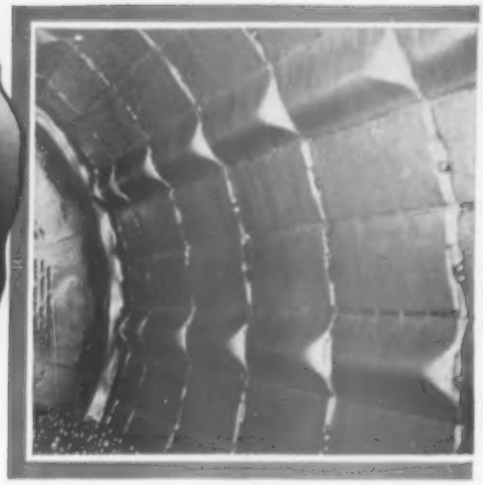

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Liners are supplied in two nominal thicknesses, 1½″ and 3″ with 1½″ high lifters. Castings are 6″ wide x 12″ long. Positive seating of small castings on mill shell means less breakage of castings under operating conditions. For additional information on B&W Universal Tube Mill Liner Plates, write The Babcock & Wilcox Company, Process Equipment Department, Barberton, Ohio.

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addition of from 0.1 to 0.4 percent oleic acid decreases the effort required during finish grinding of cement; that a more deterioration-resistant fresh cement will result; and that if the air-entraining tendencies of portland cement so treated are controlled, the resultant mortars and concretes are similar to those obtained using untreated cements. The authors said a suitable air-detraining agent is tri-n-butyl phosphate. This air-reducing agent may be either interground or added at time of mixing. The study indicates that the cost of materials for adequate treatment would be less than 10¢ per sack.

The technical session on concrete and concrete aggregates was presided over by E. O. Slater, president, Smith-Emery Co., Los Angeles assisted by R. E. Davis, director emeritus, Engineering Materials Laboratory, University of Calif., Berkeley and, Byron Weintz, chief engineer, Consolidated Rock Products Co., Los Angeles.

Four interesting papers were given: "The Partial Replacement of Portland Cement in Concrete"—Bryant Mather, Waterways Experiment Station Corps of Engineers; "Test of Prestressed Expanded Shale Concrete Beams Subjected to Short-Time and Sustained Loads"—R. E. Davis and G. E. Troxell, University of California, Don McCall, and R. A. McCann, Basalt Rock Co.; "The Effect of Aggregate Quality on Resistance of Concrete to Abrasion"—Fabian L. Smith, U. S. Bureau of Reclamation"; and "A Physical Method for Determining the Composition of Hardened Concrete" —J. W. Kelly, Milos Polivka, and C. H. Best, University of California.

The paper by Mr. Mather was a very comprehensive report on the use of replacements in concrete for the portland cement. The work was carried out by the Corps of Engineers, U. S. Army at the Clinton, Miss., concrete research laboratory.

Sixteen replacement materials, including representatives of six classes: blast-furnace slag, natural cement, fly ash, volcanic glass, calcined opaline shale, and uncalcined diatomite were investigated together with five portland cements: two type I cements, of low- and high-alkali content, a type II, a type III, and a type IV. A total of 123 concrete mixtures containing crushed limestone aggregates up to ¾-in. in size, 6±½ percent air, and having a slump of approximately 2½-in. were proportioned. About half the mixtures had a water-cement ratio of 0.5 by weight, to represent structural concrete, the remainder, 0.8, to represent mass concrete. The 16 materials were used as partial replacements of the portland cement in various percentages by solid volume from 8 to 70. The performance of the replacement materials in concrete was rated against selected values for certain properties regarded as critical for the two classes of concrete studied. Structural concrete (0.5 water-cement ratio) was regarded as adequate if its bleeding did not exceed 5 percent, its permeability did not exceed 25, its resistance to laboratory freezing-and-thawing was at least 60, its shrinkage did not exceed 0.070 percent at 180 days, and its compressive strength at 28 and 90 days was at least 3000 and 4000 p.s.i., respectively. Mass concrete (0.8 water-cement ratio) was rated against the following factors: bleeding not exceeding 7 percent, permeability not exceeding 10, compressive strength at 3 and 90 days at least 500 and 2000 p.s.i., respectively; in addition, credit was given for the degree to which the heat of hydration was reduced by the use of the replacement materials.

Structural concrete (0.5 water-cement ratio) made with type II portland cement and having as high a rating as that containing no replacement material was obtained when part of the portland cement was replaced by the following materials in the indicated amounts: 50 percent slags I and II or natural cement I; 35 percent natural cements I and II; 30 percent fly ash I; 25 percent diatomite I; 20 percent natural cement I, or calcined shale I; or 8, 12, or 16 percent uncalcined diatomite. Mass concrete (0.8 water-cement ratio) made with type II portland cement and having a rating as high or higher than that containing no replacement material was obtained when part of the portland cement was replaced by the following materials in the indicated amounts: 50 percent natural cement I; 40 percent calcined shale I; 35 percent natural cement I, pumicite II, or tuff; 30 percent slag I, calcined shales I and II, or calcined diatomite; 25 percent pumicite I; 20 percent natural I, or calcined shale I; and 8, 12, or 16 percent uncalcined diatomite.

The paper, "Prestressed Expanded Shale Concrete Beams Subjected to Short-Time and Sustained Loads", was delivered by Mr. Troxell.

This paper gives the results of tests on 19 flexural members of prestressed concrete, of lengths ranging from 24 to 65 ft. and including beams of double-tee section for floors and roofs, box beams for floor systems of bridges and buildings, and girders and purlins of I-section for roofs. Most of the members were composed of expanded-shale lightweight concrete, and for most of the members the steel was pretensioned. Most of the tests were made under loading which would produce failure in bending; others in shear. All flexural members were loaded until first cracking was observed, and then unloaded to observe recovery.

It was found that live loads required to produce first cracking in flexure ranged from 1.5 to 2.2 times the design loads. Shearing loads required to produce failure in diagonal tension ranged from 1.0 to 1.7 times those computed for conventionally reinforced concrete beams of similar section. Live-load deflections under short-time loading were generally considerably less than was expected. When the design loads were released, elastic recovery was practically complete.

The paper, "Effect of Aggregate Quality on Resistance of Concrete to Abrasion", was delivered by Fabian B. Smith. At the work 60 concrete mixes using different combinations of aggregate, combining good quality sand and gravels with poor quality sand and gravels, different sand contents and water-cement ratios, the latter ranging from 0.32 to 0.70, were used to determine their effect on the resistance of concrete to abrasion. Aggregates were selected which represented Los Angeles abrasion losses at 500 revolutions, ranging between 12.6 and 39.1 percent. Measure of resistance to abrasion loss was determined by three types of abrasion machines: the Davis steel ball and the dressing wheel abrasion apparatus, which represent the types of wear caused by steel wheels under heavy load, and the Ruemelin shotblast apparatus, which simulates the erosion caused by solids in flowing water.

The conclusions that the author drew from his work were as follows: "Abrasion resistance varies directly with both compressive strength and cement content, and inversely with water-cement ratio, regardless of aggregate quality or combinations of aggregate used."

The final paper, "A Physical Method for Determining the Composition of Hardened Concrete", was delivered by Mr. Polivka. The paper described a "point-count" method of determining the cement content of hardened portland-cement concrete by analysis of a cut section with a traveling microscope. The voids and aggregate content are determined by direct observation; the cement content is then determined by difference, with correction for non-evaporable water in the cement paste. Sand-aggregate ratio is also computed.

It was concluded that the microscope analysis is at least as precise as the chemical methods, and that it requires less time and equipment.

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ICHABOD WASHBURN

Ichabod, Ichabod, how did you ken
The need for wire when you met Ben?
How did you know you'd not lose your shirts;
That ladies of fashion would hoop their skirts?

BENJAMIN GODDARD

Ichabod, Benjamin Goddard and you
Together made some products new.
How did you know that when sales took a drop
Washburn & Goddard would still be on top?

Ichabod. Benjamin. You made some dough
And finally merged with a worthy foe.
A. S. and W. now it became,
With products and sales, and world-wide fame.

Times have changed—wire uses, too,
But venerable A. S. and W.
Still remains foremost and best
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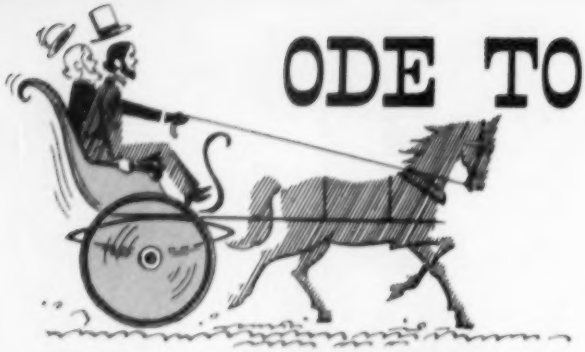
ODE TO A ROAD...AND

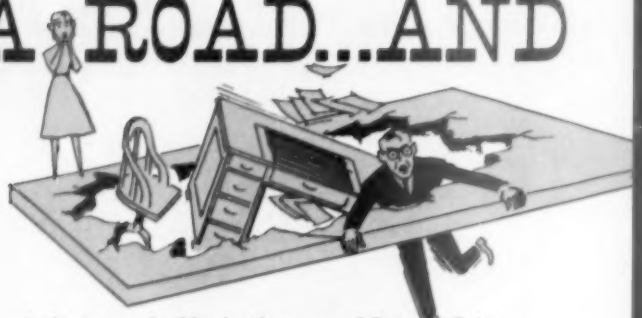


When Ichabod and Ben used to ride through towns

They bounced and they jounced and they wore big frowns.

Today, they'd be happy, and free of all ire

On roads made of concrete, reinforced with wire.



A skyscraper builder by the name of Peter J. Grim

Forgot wire fabric and learned to his chagrin

That there's not a building tenant who doesn't deplore

An office that's built with a disappearing floor.

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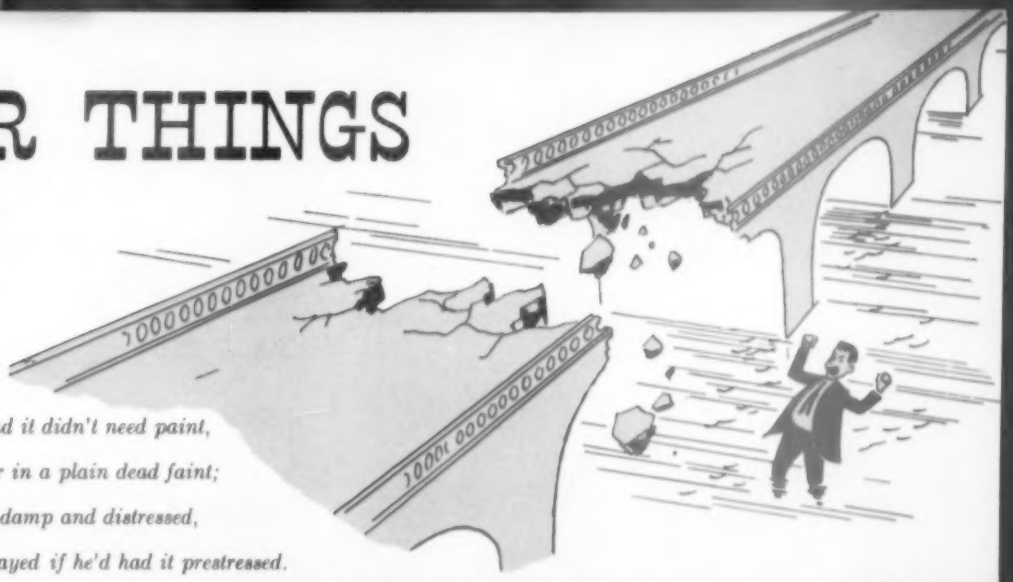

There once was a bridge and it didn't need paint,
But collapsed in the river in a plain dead faint;
And so did the builder, all damp and distressed,
His bridge would have stayed if he'd had it prestressed.

Prestressed concrete now is being used in building floors, roofs, and beams, as well as in bridges. And in the Lincoln Tunnel Retaining Wall, shown at right, prestressed concrete panels form the wall. These panels were pretensioned with American High Strength Stress-Relieved Strand. American Steel & Wire also manufactures Super-Tens Stress-Relieved Wire for prestressing systems that use wire. American Steel & Wire was the first to manufacture a high strength strand for pretensioned, prestressed concrete. We make a complete line of sizes and types in both wire and strand.

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Mining Congress

Attracts Big Attendance of Industrial Minerals Producers

PRACTICALLY ALL SEGMENTS of the rock products industry were represented at the American Mining Congress held in Shrine Exposition Hall, Los Angeles, Calif., Oct. 1 to 4. About 6000 producers in metal mining and industrial minerals were registered. The magnet that drew these men was the very extensive exhibit. Many papers were directed primarily to the industrial mineral producer. The type of exhibits gave recognition to the rock products industry as the world's largest mining operation, taking from the surface of the earth over a billion tons per year of salable material.

Added recognition to the rock products producer was indicated by the roster of executives chosen as presiding officers, speakers, and committee heads. The list included Garner A. Beckett, president, Riverside Cement Co.; William Wallace Mein, Jr., president, Calaveras Cement Co.; D. L. Marlett, vice-president, Great Lakes Carbon Corp.; Robert Mitchell, president, Consolidated Rock Products Co.; A. J. Cayia, president, Inland Lime & Stone Co.; and others.

There was a total of 198 exhibitors and sponsors with the booths filling the main floor, balcony, the basement of the huge exposition hall and overflowing to the outside where some of the larger and heavier earth moving and mining equipment was shown.

The sessions given in the three meeting rooms all started with a moving picture designed to interest the miner and rock products producers. The movies were sponsored by the U. S. Bureau of Mines, the City of Los Angeles, Standard Oil Co., Aluminum Corporation of America, International Nickle Co., Monsanto Chemical Co., Pacific Coast Borax Co., Colorado Fuel and Iron Co., and others.

Nine papers were given at two different sessions that related directly to industrial minerals. The session devoted to "Developments in Industrial Minerals" was presided over by the co-chairmen: D. L. Marlett, vice-president, Great Lakes Carbon Corp., Los Angeles; and William Wallace Mein, Jr., president, Calaveras Cement Co., San Francisco.

Five papers and their authors were as follows: "Significant Developments in Ceramic Raw Materials and Markets," Richard F. Brooks, manager of mining operations, Gladding, McBean & Co., Los Angeles; "Diatomite in Calcium and Magnesium Silicates," Herbert L. King, Jr., research manager, Celite Department, Johns-Manville Corp., Manville, N. J.; "What Makes a Gypsum Deposit Economic?", J. F. Havard, vice-president, Fibreboard Paper Products Corp., San Francisco; "Recent Developments in Limestones, Dolomites and Cement in California," Oliver E. Bowen, Jr., associate mining geologist, California Division of Mines, San Francisco; and "Perlite and Other Lightweight Aggregates," Paul W. Leppla, technical director, Dicalite Div., Great Lakes Carbon Corp., Los Angeles.

Mr. Havard in his paper on gypsum said that the production for 1955 totalled 14,637,000 tons, of which 4,064,000 tons was imported. He described the uses for gypsum and outlined the main productive areas. In summarizing Mr. Havard said, "In summary then, these are the chief factors that must be considered in the evaluation of an economic gypsum deposit: an available market; low mining costs; cheap transportation to point of use; good competitive quality; and adequate tonnage. Some of the dangers which must be considered by the prospector are: interstratified impurities; anhydrite; structural problems; and subsurface solution.

"Given a potentially commercial deposit, the small independent operator can develop a profitable enterprise only if he understands the competitive pattern and finds a unique situation. He will be most likely to find such a situation in producing portland cement retarder or agricultural gypsum. Major companies still seek large gypsum deposits as reserves to back up existing operations, to obtain a geographical advantage or to serve a new market."

Mr. Bowen gave an excellent summary of limestone and dolomite and cement in California, saying that in 1955 some 12,000,000 tons of limestone were produced and about 350,000 tons of dolomite, and the finished product had a value of $113,000,000 at the mill. The speaker made the following interesting observation:

"One transaction may mark the beginning of a new era in cement operations. This is the purchase of Santa Cruz Portland Cement Co. by Pacific Coast Aggregates Co. There has long been a need for closer integration between cement-producing and concrete aggregate producing operations. In the past when there has been a structural failure in concrete, some have laid the blame on the cement used, whereas others have maintained that fault lay solely with unsuitable aggregate. Integrated operations which would include not only the production and preparation of the ingredients which go into concrete but the proportioning, mixing, and placement of the concrete on the job may well be in the offing."

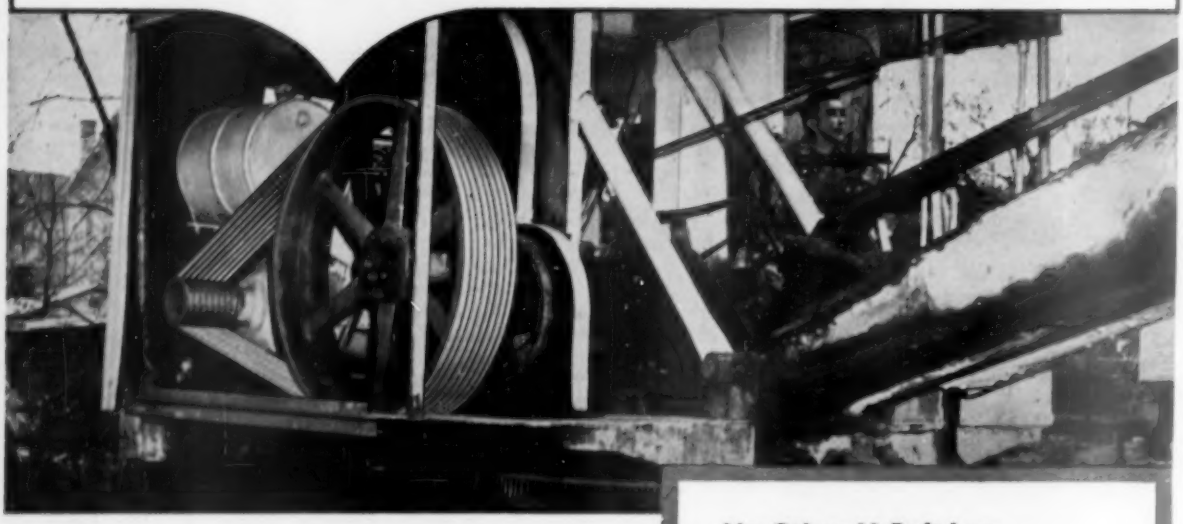
The paper prepared by Mr. Leppla described perlite and its processing. He said the annual volume was about $12 million per year, and the rate of growth was about 20 percent per year. He described the sources of ore, the mining and milling techniques and uses.

At the second session of "Industrial Minerals — Production and Processing," the same co-chairmen presided. The following papers were given: "Heat Processing of Pelletized Materials as Developed for the Cement Industry," B. H. Puerner, assistant manager, Processing Machinery Department, Allis-Chalmers Manufacturing Co., Milwaukee; "Production of Specification Gravels for Concrete by Heavy Media Separation," F. E. Legg, Jr., assistant professor, Engineering Materials, University of Michigan, Ann Arbor, Mich.; "Recent Developments in Mining and Transportation of Gilsonite," John H. Baker, assistant to production manager, American Gilsonite Co., Salt Lake City; "Union Oil's Shale Demonstration Plant—Mining and Retorting Methods," Fred Hartley and G. H. Hemmen, Research Department, Union Oil Co. of California, Brea, Calif.; and "New Underground Mining Development at Crestmore," R. H. Wightman, mine manager, Riverside Cement Co., Riverside, Calif.

Mr. Puerner in his paper on pelletized material for the portland cement industry said that a typical commercial cement plant producing 4000 bbl. daily could save up to $30,000 a

(Continued on page 138)

These super-tough V-belts saved construction firm $1,600 first year



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Then Ayers Shortt called in a Gates engineer to solve the problem. With space limited and severe shock-loads a factor, the Gates man recommended a Gates Super Vulco Rope Drive for lowest initial cost and continuing economy. "The shovel runs like new," says Mr. Shortt, "and every year the Gates drive is saving us the $1,600 it cost in parts and lost time to replace the chain drive."

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Super-strength tensile cords provide 40% greater horsepower capacity . . . easily absorb heavy shock loads . . . reduce number of belts required . . . save weight and space.

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Efficiency of the plant is increased by using these electric drives because all components operate at top efficiency at all times . . . regardless of crusher loads, thereby delivering top production of accurately sized aggregates.

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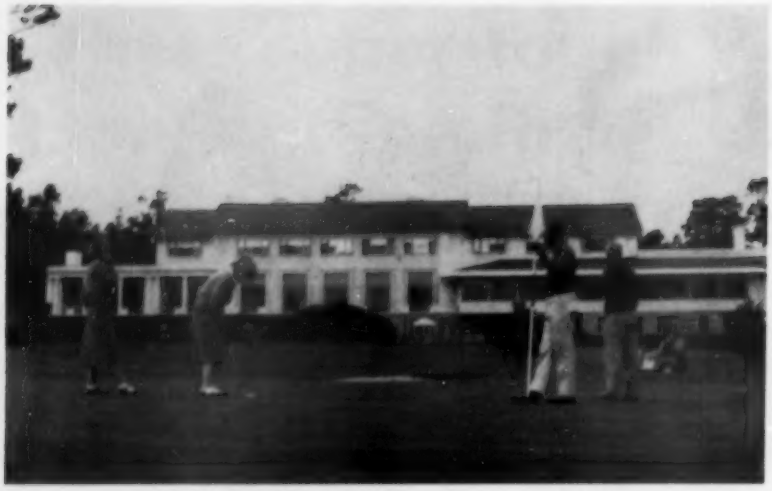

Del Monte Lodge where directors' meetings were held

Directors' Meetings of N.S.G.A. and N.R.M.C.A. Discuss Pressing Industry Problems

PUBLIC RELATIONS, taxation, the federal highway program—these and other pressing industry problems were actively discussed at the three-day meeting of the Boards of Directors of National Sand and Gravel Association and the National Ready Mixed Concrete Association. They met October 1-3 at Del Monte Lodge, Pebble Beach, Calif. in a regular semi-annual Board get together.

The 1956 meeting was the second largest in the history of the associations. About 130 board members, wives and guests were present. The N.S.G.A. board met Monday, October 1, followed on Tuesday by a meeting of the N.R.M.C.A. board. Both boards met in a joint meeting on Wednesday to discuss mutual problems.

N.S.G.A. Board Meeting

N.S.G.A. president Roy E. Weaver, Lincoln, Ill., presided over the opening session and began with a brief statement indicating his appreciation for a large turn-out for the meeting. Report of the treasurer for the first six months of 1956 was read by Mr. Ahearn. It showed a continuing condition of financial health. A revised budget for the remainder of the year was presented, and the report was accepted unanimously.

The problem of taxation remains an important one for the industry. Report of the Committee on Taxation and Percentage Depletion was given by J. Rutledge Hill, Dallas, Texas. He recounted the attitude of federal legislators on the percentage depletion question and suggested that now is not the time to push for an increase in the rate from the present five percent. Experience of other industries on this question—and capital gains on leases—was the basis for the suggestion. Mr. Ahearn added a note of caution in attempting to press for an increase now. He indicated that the industry surely is entitled to an increase if any industry is, but that a lot of educational work will be required on the subject to get over the basic economic facts of the industry to the legislators involved.

The River Bill got through the Ways and Means Committee in the last Congressional session, but unanimous consent of the committee was not obtained to get the bill to the floor. A similar bill, if there be such, would have to start from scratch during the next session of Congress.

Public relations as a topic received much attention by the group. An excellent report of the committee was given by E. K. Davison of Pittsburgh, Penn. His full committee approved a plan of enlisting professional help to carry the industry's true story to the public. It is problem No. 1 for the sand and gravel people, and an effective educational program is needed. The committee authorized the association staff, if the board concurred, to proceed on the basis of a 5-point program that would emphasize (1) the importance of sand and gravel to the economy, (2) description and photos of good rehabilitation programs, (3) good public relations contacts, (4) legal principles concerned in zoning laws, and (5) examples of zoning laws that have been helpful to the industry.

Mr. Davison pointed out that much work already has been done by the association staff and by Pete Ahearn. He emphasized that headquarters should be the central source of information to membership on the five points for their use locally. In his opinion, benefits can be gained by "pushing down beyond the state level".

An example of adverse publicity was given to show the disadvantage of no directed program. A few stories get out on non-representative operations, and the public believes them to represent normal operation—to the unfortunate discredit of the industry.

Discussion was withdrawn to allow Mr. Davison and his committee to meet later in the day, to talk about specific recommendations for appropriating a sum to begin an active directed program. The eventual result was to approve a sum of $10,000 as a first step in getting professional help on setting up an effective public relations program.

Engineering projects carried out by the association this past year were described by Stanton Walker, director of engineering. A comprehensive flexural strength study being carried out in the laboratory was mentioned. Mr. Walker explained that the Navy and the Army engineers have used flexural strength as a basis for acceptance of concrete. Aggregates are important in flexural strength. Particular emphasis was placed on the importance of distribution of moisture in the concrete test beam. "If a sample is allowed to dry out a few hours before testing," said Mr. Walker, "strength is reduced 35 percent." In tests, sawed beams showed about 25 percent lower strength than molded beams.

An attempt is being made under an aggregate evaluation program to get a

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more logical basis for aggregate specifications. Since there are not a great many things one can do to improve the natural condition of the deposit, it seems that there must be different specification levels, tailored to fit the economically available material in the specification localities. The engineering department will test samples of aggregates as received from members to determine mineral content and suspicious material. The latter will be subjected to further testing.

Mr. Walker discussed the Maryland Joint Highway Research Project, which differs from the successful Indiana, Kentucky, Virginia and Tennessee programs. The same cooperation between state universities and highway departments is obtained in the Maryland plan, but industry was called upon to advise on the program underway. An advisory board has been set up, including representatives from the Portland Cement Association, Asphalt Institute, National Crushed Stone Association, Highway Research Board, Bureau of Public Roads, and the National Sand and Gravel Association. Mr. Walker, representing the latter, is chairman of the advisory board.

The Executive Secretary's report by V. P. Ahearn covered the establishment of association policy with regard to several anticipated questions. He announced two vacancies on the board of directors. The board elected Frank Kelly of Colonial Sand and Gravel Co., New York, to fill a vacancy. Fred Curtis of Omaha, Neb., was elected to replace a vacancy on the executive committee.

Mr. Ahearn reported on the development of a cost accounting system for the sand and gravel industry, as a supplement to the group's "Outline Manual of Cost Accounting for Sand and Gravel Industry," issued 10 to 15 years ago. He announced that a new manual will be made available by the committee in time for the February meeting in Los Angeles next year. Mr. Ahearn complimented the real talent in the industry represented by the five-man committee that worked on this manual.

In discussing other legislative matters, Mr. Ahearn stated that the association intends to ask Congress to consider a new Baker Bill, proposing percentage depletion for river sand and gravel producers. The question of a proposal before the I.C.C. to increase demurrage charges was raised. The Commission has postponed action on the proposal until next Spring. In that connection, the association has informed the Association of American Railroads that cleaning and repair of railroad cars is expensive. The board authorized the association to address a letter to the A.A.R., stating the great expense of such effort by sand and gravel producers, to keep alive before that group the industry's complaint.

N.R.M.C.A. Board Meeting

The subject of public relations was highlighted at the Tuesday morning session of the Board of Directors, National Ready Mixed Concrete Association. A vote to increase maximum annual dues of members and a progress report on the joint N.R.M.C.A.-P.C.A. program for promoting use of ready-mixed concrete in highway and street construction also were high points of the program.

Robert Mitchell, Los Angeles, Calif., president of N.R.M.C.A., was presiding officer. In his opening remarks, he pointed to the value of membership in the national association. He attended both the Ohio State and Michigan State meetings, and affirmed the importance of the local groups. "But," he said, "to get full advantage, producers should be members of the national organization."

The opening business session included the reading of the financial report by Executive Secretary V. P. Ahearn. It was voted acceptance by the board. F. E. Schouweiler, Fort Wayne, Ind., presented the audit report for 1955. In his presentation, he brought up the question of increasing income through an increase in dues. The Executive Committee had voted to increase annual dues to large producers to a maximum of $750, raised from a maximum of $500. The basis being 4 mills per cu. yd. (which was not to be changed), dues would be raised from a former maximum of 125,000 cu. yd. to 187,500 cu. yd. The board voted the change.

Public Relations, discussed by the committee chairman, Ralph H. Anderson of Columbus, Ohio, held the interest of this group as it did in the N.S.G.A. meeting. The industry agrees that there is a need for a strong public relations program, especially one covering plants and trucks. Mr. Anderson noted that such a program must take the offensive in telling the public that the industry *is* interested in taking care of nuisance value. He remarked that the program must have the interest and backing of the industry's producers.

Mr. Anderson's report received a compliment from the Board, which voted to send copies to the full membership. Further discussion was postponed until the joint board meeting the following day, when the board authorized a $10,000 expansion in the budget for work on public relations.

Promotion of ready-mixed concrete for use on highways and streets was discussed ably by George Paris of the Portland Cement Association. He substituted for James D. Piper, vice-president for promotion, P.C.A. The joint N.R.M.C.A.—P.C.A. program, begun more than a year ago, is making steady progress. Mr. Paris reviewed the history of the effort, stating that pilot studies on promotion were conducted in four cities, the first two of which were St. Paul, Minn., and Akron, Ohio. A program of seven newspaper ads, directed to ready-mixed producers in St. Paul on the alley program, gave detailed cost studies of pavements in the area. In Akron, the program was directed to city officials.

Mr. Paris also mentioned other promotional work being done by P.C.A. for the ready-mixed concrete industry in the farm, structural, housing and other fields. In his opinion, the two industries can work together to expand the market for ready-mixed concrete.

New truck mixer standards, as revised for the fourth time by the Truck Mixer Manufacturers Bureau and reveiwed by the association's Committee on Standards, were presented to the board for approval. Stanton Walker explained eight proposed revisions and suggested their approval subject to proposed amendments. The board voted approval. A meeting of the Standards Committee will be held December 11 in Chicago to consider further changes in truck name-plate and truck-mixer speed standards.

Report on engineering progress was given by Stanton Walker. His department has made more than 7000 strength tests on cement. A final report on cement testing will be made at the February annual meeting. Future laboratory plans include a study of portland-slag cements and continuation of admixture testing.

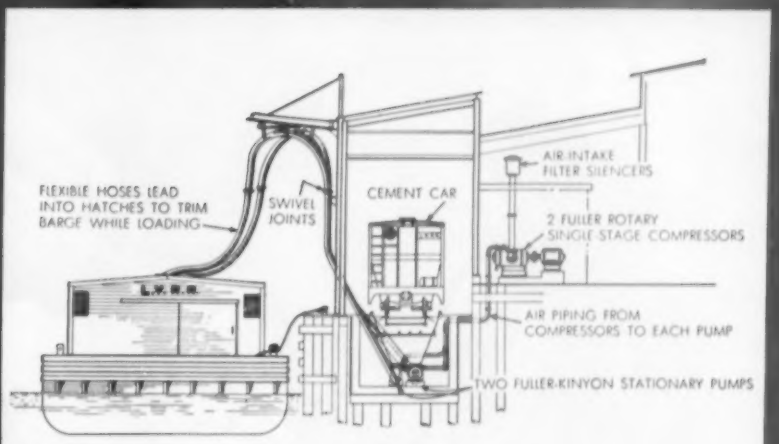
Report of the executive secretary, V. P. Ahearn, included suggestions for setting various association policies. He also announced a recent ruling by the Internal Revenue department that suppliers of ready-mixed concrete are not subject to the manufacturers excise tax on truck mixers. The truck chassis is subject, however.

Joint Board Meeting

Highlight of the Wednesday joint meeting of the associations was a presentation of the Federal-Aid Highway Act of 1956 by Ezra C. Knowlton of Salt Lake City, Utah. His comprehensive report revealed his wide knowl-

(Continued on page 128)

Fuller-Kinyon Remote-Control Unloader on barge, for unloading cement at destination.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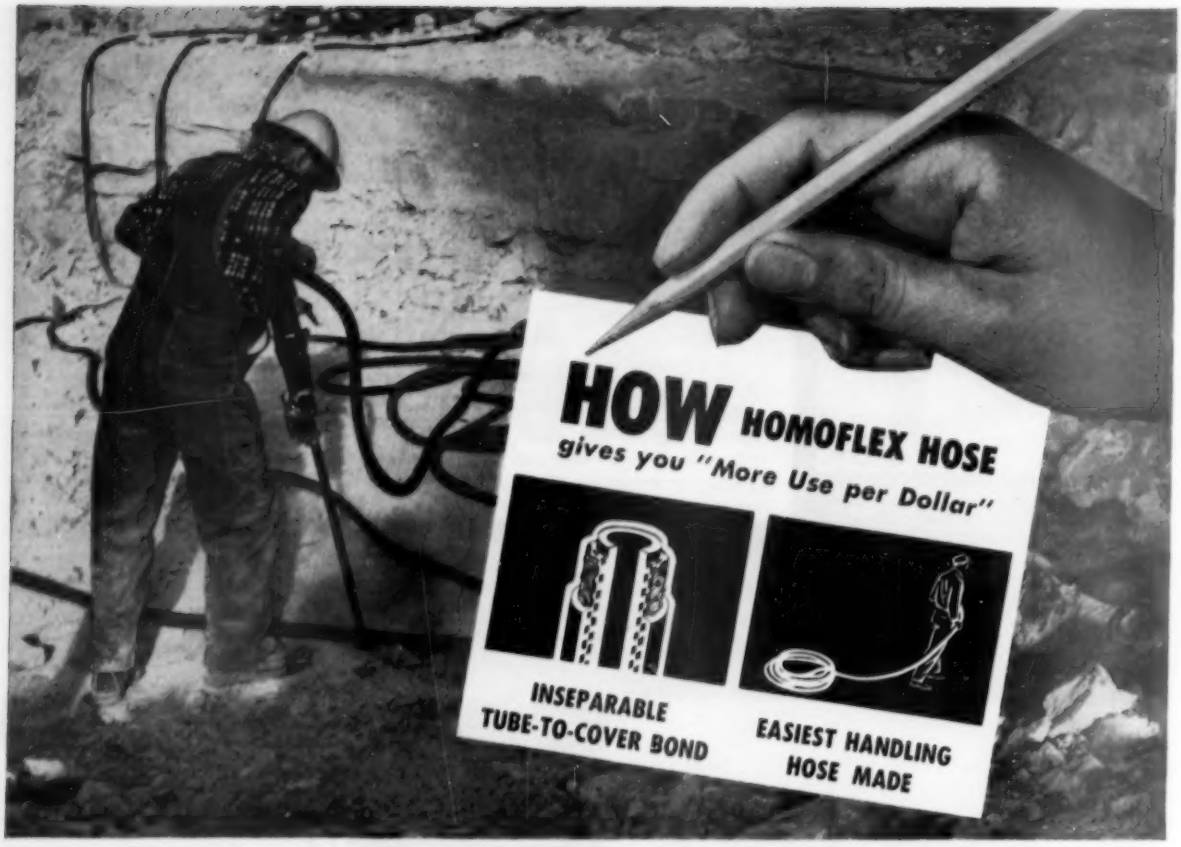

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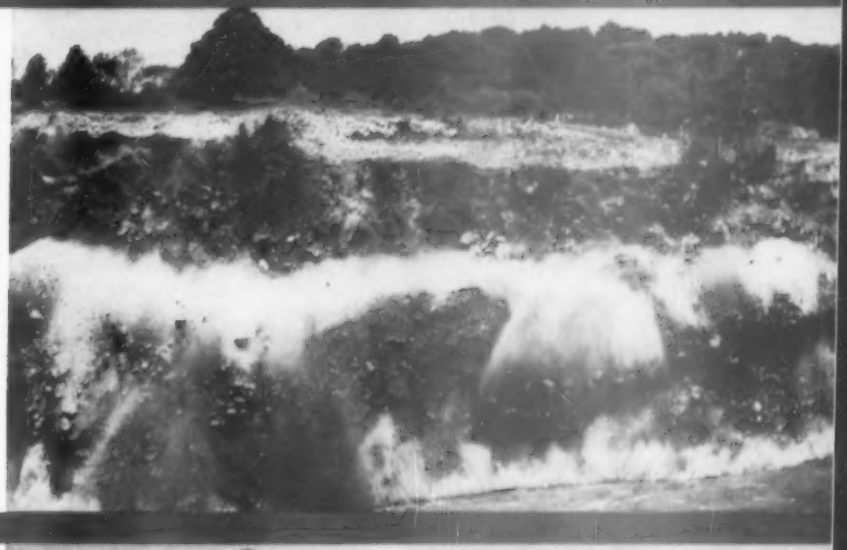

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Review of Recent U. S. Patents on Non-Metallic Minerals

By OLIVER S. NORTH*

2,759,794—A process for recovering magnesium chloride values from the sylvite-free liquor obtained from the base-exchange processing of **langbeinite,** which results in recovery of the potassium chloride content. This "reject" liquor has heretofore generally been sent to waste. This invention contemplates heating the reject liquor, adding calcium chloride, removing the byproduct anhydrite produced, and evaporating the overflow to obtain a 40 percent concentration of magnesium chloride. (to C. H. Fuchsman. Assigned to International Minerals & Chemical Corp.)

2,759,795 — Fluorine-free, high-grade calcium phosphates are produced from **phosphate rock** by leaching the ore with sulfuric acid to obtain a solution of monocalcium orthophosphate of a controlled mole ratio, and heating to a range of 100 to 200 degrees C. to evolve fluorine constituents. (to J. R. Archer. Assigned to International Minerals & Chemical Corp.)

2,758,828 — In a rotary kiln designed for production of **hydraulic cement,** especially **portland cement,** provision is made for introducing by mechanical means a temperature break at a desired point in the kiln, preferably at the stage just prior to clinkering the oxides. The partly-calcined product is crushed, and then subjected to maximum clinkering temperatures. This step permits complete removal of carbon dioxide from the carbonates, and results in greater fuel efficiency and improved kiln capacity. (to R. Pyzel.)

2,759,833-2,759,835—A **serpentine** rock derived from dunite is used as the hydrous magnesium silicate component in a refractory composition. Chrome spinel and magnesite or brucite are the other principal raw materials. (to H. K. Mitra.)

2,759,847—**Whiting** and imported and domestic **kaolin** are used in coating compositions for high quality paper. (to F. H. Frost and P. S. Leighton. Assigned to S. D. Warren Co.)

2,759,899—Hard catalysts are made from mixtures of **activated clay,** and **kaolin** or **ball clay.** Other materials, such as alumina, cobalt oxide, or molybdenum oxide, may also be added to the composition. (to R. A. Hanson. Assigned to Union Oil Co. of California.)

2,758,918—A composition for regulating the growth of plants comprises certain chemicals carried in a finely ground inert material, for example, **clay, talc, gypsum, lime,** or the like. (to S. B. Solway, J. G. Morales, and J. V. Overbeek. Assigned to Shell Development Co.)

2,758,945—A method and apparatus for spraying walls with **gypsum** plaster, **portland cement** stucco, or the like. Sand, the cementitious material, and an excess of water are mixed, and the mixture is forced through a conduit into the spray gun. Air pressure in the gun is sufficient to relieve the slurry of excess moisture. (to J. J. Widmayer.)

2,758,954 — **Bentonite, attapulgite,** or **talc** can be treated with carbon dioxide or sulfur dioxide and then ground, for use as an improved extender for phosphate ester fungicidal and insecticidal compositions. (to C. M. Tidwell. Assigned to Food Machinery & Chemical Corp.)

2,758,955—Useful inert carriers for a thianapthene fungicide include **diatomite, pyrophyllite,** and **talc.** (to O. H. Johnson, A. M. Harvey, and H. West. Assigned to Food Machinery & Chemical Corp.)

2,758,984—A plastic composition that will not show electrostatic charges when extruded is made by incorporating into the base plastic a destaticizing liquid dispersed on a sorbtive material, among which are named silica gel, **diatomite, bentonite, clay,** and **asbestos.** (to M. A. Coler.)

2,760,431—An improved surface for lithographic plates comprises zinc oxide, ammonium hydroxide, polyacrylic acid, and an inert filler, such as **clay, diatomite, chalk, talc, silica,** or the like. (J. L. Beatty. Assigned to A. B. Dick Co.)

2,760,768—A process and apparatus for producing **lime** whereby maximum fuel efficiency is realized. The raw material, usually crushed limestone, is dried and preheated in a rotary dryer that utilizes kiln gases, and then fed to a relatively short rotary kiln for calcining. (J. F. Kennedy.)

2,760,854—**Attapulgite** is cited as an especially desirable carrier for water-soluble chromate or dichromate plant defoliants. Other minerals listed as useful for the same purpose are **diatomite, talc, gypsum, pyrophyllite, bentonite, kaolin,** and **fuller's earth.** (W. A. La Lande, Jr. Assigned to The Pennsylvania Salt Manufacturing Co.)

2,760,876—A waterproofing coating composition for application to cement and plaster surfaces comprises white **portland cement,** hydrated **lime,** a pigment, calcium chloride, sodium silicate, and **bentonite.** The mixture can be transported and stored in dry powder form, requiring only addition of water at the time of use. (S. S. Schulman. Assigned to Siliphane Corporation of America.)

2,760,878—Crushed **stone** aggregate used for road paving can be more effectively coated with asphaltic binder if it is primed in two stages with an oil-in-water emulsion. (M. H. Lhorty. Assigned to Shell Development Co.)

2,760,885—Cementitious materials, such as **portland cement** or **gypsum** plaster units, can be made to adhere to wood or concrete bases by applying to the base an emulsion of a polyvinyl acetate resin as a bonding agent. This agent retains its bonding qualities even after it has dried out, in contrast to asphalt bonding agents which require that the bond be effected while the agent is still wet. H. J. Larsen and G. G. Groome. Assigned to P. H. Larsen.)

2,760,900—A finely ground mineral, such as **diatomite, talc, mica, pyrophyllite, pumice, bentonite, kaolin,** or **attapulgite,** can be used as the carrier for a stabilized chlorinated pesticidal composition. (H. D. Glenn and R. J. Dowling. Assigned to United States Rubber Co.)

2,761,775—Relatively fluorine-free dicalcium phosphate can be obtained by grinding **phosphate rock,** adding thereto an excess of sulfuric acid, leaching, removing the calcium sulfate and insoluble rock, and defluorinating the remaining solution by adding fine-grained, chalk-like **limestone** and filtering. The final fraction is high in phosphorous content and low in fluorine. (I. M. Le Baron. Assigned to International Minerals & Chemical Corp.)

2,761,796 — Minerals used in a welding rod coating composition include **kaolin, talc, cryolite, asbestos, silica,** and **graphite.** (R. D. Wasserman. Assigned to Eutectic Welding Alloys Corp.)

2,761,835 through 2,761,843—This series of patents relates to methods of chemically stabilizing **clay**-containing soils, earths, etc.; for example, road beds, building foundation sites, earth formations in drill holes, and the like. (W. E. Brown and C. R. Giacobine. Assigned to Gulf Research & Development Co.)

*Copies of United States patents are available from Commissioner of Patents, Washington 25, D. C., at a cost of 25¢ each.

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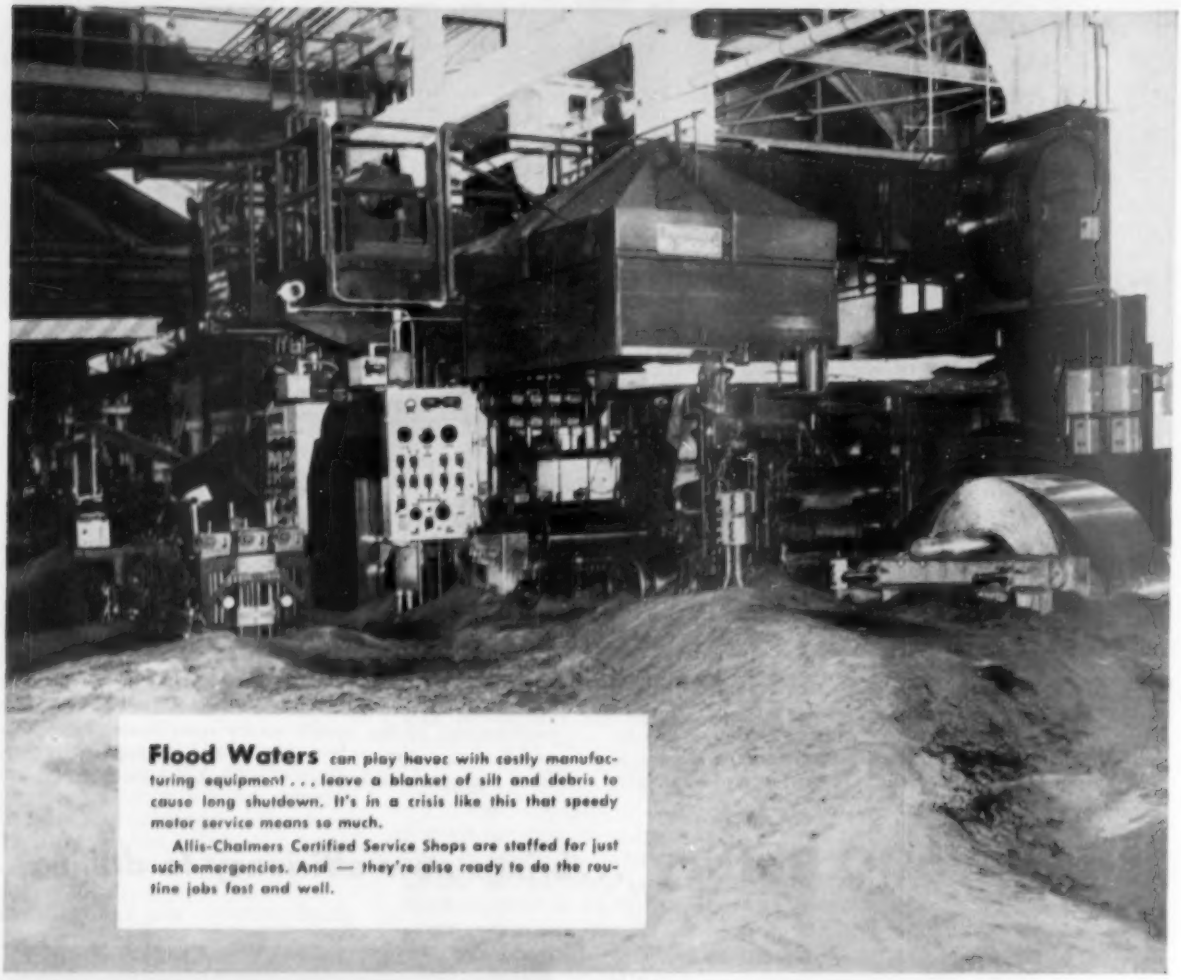

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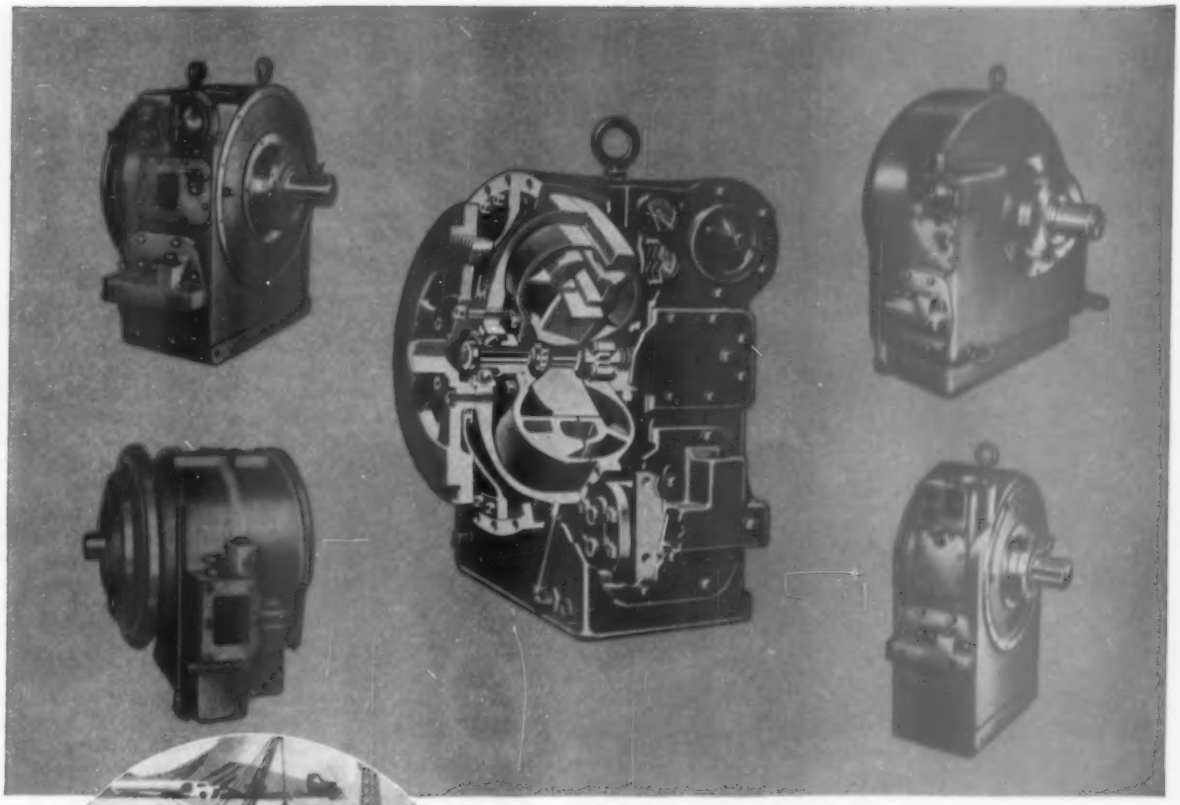

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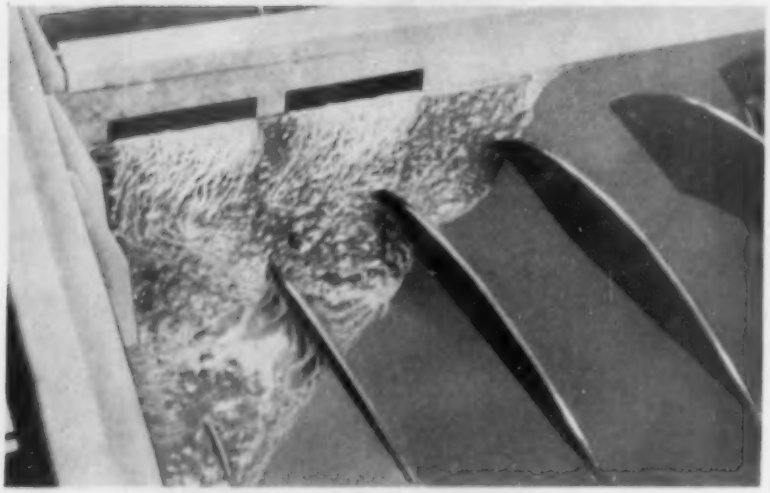

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ROAD PROGRAM

(Continued from page 61)

program on the improvement of vital arteries through our cities, where large concrete batching plants are now favorably located. Thus, there will certainly be enlarged opportunities for ready mixed concrete—especially for pavement widening and a tremendous volume of curb and gutter construction along median dividing strips.

Realizing that ready mixed concrete hasn't even approached its street paving potential, the National Ready Mixed Concrete Association and the Portland Cement Association have joined in a vigorous promotional program aimed at this objective. Spokane, St. Paul and Akron have been chosen as pilot cities to launch this program. It will consist not only of cost and life studies of pavement surfaces and structures—constructed with concrete and competitive materials—but also of broad advertising and public relation activities.

The sand and gravel and ready-mixed concrete industries have kept pace so well with record breaking construction demands each year that, without question, they are capable of taking the expanded highway program in stride. The chief concern—and this should not be minimized—is that the precious deposits of raw materials in all too many areas are approaching exhaustion. If costs are not to be forced drastically upward (mainly by growing transportation), there must be increased understanding from the general public, and especially from public officials, on one vitally important point: the necessity of preserving remaining gravel lands near our population centers. For its part, the industry must bend every effort toward intelligent operation of these lands—so the complaint of nuisance by neighbors shall be held to a minimum and our nation can realize the utmost value from its wealth of sand and gravel deposits.

Fireproofing Described

VERMICULITE INSTITUTE, Chicago, Ill., has published "Vermiculite Fire Resistance Ratings for Plaster, Acoustical Plastic, and Concrete," which shows fireproofing details for both concrete and steel roof and floor assemblies, columns, beams, girders and trusses, panel or spandrel walls, and solid plaster partitions. The constructions are described as tested. The booklet is available from Vermiculite Institute, 208 S. LaSalle St., Chicago 4, Ill.

Here Now! NEW CHEVROLET TASK·FORCE 57 TRUCKS!

FIRST with the MOST modern features

They're out to save you hours and dollars on any hauling job . . . and they've got big new power plus the modern features that make it a sure thing! They put you way ahead with time- and work-saving advantages you won't find in any other truck!

Again, for 1957, Chevrolet medium- and heavy-duty trucks bring you the industry's most advanced features—new developments that have already been proved in a history-making pre-announcement test run! (See below.)

For '57 there's bold new styling to match Chevy's remarkable stamina and dependability. There's fleet-action power in Chevy's outstanding engine line-up for '57—with the 195-h.p. Loadmaster V8 standard in all 9000 and 10000 Series trucks, and the sensational new 283-cu.-in. Taskmaster V8 (160 h.p.) standard in 5000, 7000 and 8000 series models.

Many models are equipped with bigger, brawnier rear axles. And there's a load of heavy-duty options for '57—including Chevy's revolutionary 6-speed Powermatic transmission, designed especially for heavy-load high-mileage hauling.

Be sure to check the new cab features, too . . . the handsome new upholstery, the new steering wheel, the new exterior colors. Your Chevy dealer has all the details, so see him soon! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

Alcan Highway Test Run Proves Chevrolet Ruggedness!

In an AAA-certified endurance run, 6 light-, medium- and heavy-duty trucks carrying typical cargoes roared up the 1,520-mile Alcan Highway (normally a 72-hour run) in less than 45 hours! In dramatic fashion, new Chevy trucks conquered one of the world's most challenging roads to display the great performance qualities they'll bring to *your* roads!

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the ARBA ROAD SHOW and CONVENTION

WHO YOU'LL SEE THERE!

A partial list of exhibitors planning to be there

ACME IRON WORKS • AEROIL PRODUCTS COMPANY, INC. • AEROQUIP CORPORATION • ALLEN INDUSTRIAL PRODUCTS, INC. • ALLIS-CHALMERS MANUFACTURING CO. • AMERICAN BOSCH DIVISION (AMERICAN BOSCH ARMA CORPORATION) • AMERICAN CHAIN & CABLE COMPANY, INC. • AMERICAN HOIST & DERRICK CO. • AMERICAN MANGANESE STEEL (DIVISION OF AMERICAN BRAKE SHOE CO.) • AMERICAN TRACTOR CORPORATION • ARMCO DRAINAGE & METAL PRODUCTS, INC. • ATHEY PRODUCTS CORPORATION • AUSTIN-WESTERN COMPANY • BALDWIN-LIMA-HAMILTON CORPORATION • BARBER-GREENE COMPANY • BARCO MANUFACTURING CO. • BAY CITY SHOVELS, INC. • BLAW-KNOX CO. • WM. BROS. BOILER & MFG. CO. • J. I. CASE COMPANY • CATERPILLAR TRACTOR CO. • CHAIN BELT COMPANY • C. H. & E. MANUFACTURING CO. • CHEVROLET MOTOR CORP. (TRUCK & COMMERCIAL DEPARTMENT) • CHICAGO RAWHIDE MANUFACTURING COMPANY • CHRYSLER CORPORATION (DODGE DIVISION) • C.I.T. CORPORATION • CLARK EQUIPMENT COMPANY • CLEAVER-BROOKS COMPANY • THE CLEVELAND GRAPHITE BRONZE COMPANY • CLEVELAND TRENCHER COMPANY • CONSTRUCTION MACHINERY COMPANY • CONTINENTAL MOTORS CORPORATION • COOK BROS. EQUIPMENT COMPANY • CUMMINS ENGINE COMPANY, INC. • DANA CORPORATION • BUCYRUS-ERIE COMPANY • BUDA DIVISION (ALLIS-CHALMERS MANUFACTURING CO.) • THE BUFFALO-SPRINGFIELD ROLLER CO. • BUTLER BIN CO. • THE EIMCO CORPORATION • ELECTRIC STEEL FOUNDRY COMPANY • ELECTRIC WHEEL COMPANY • E. D. ETNYRE & CO. • EUCLID DIVISION (GENERAL MOTORS CORPORATION) • FORD MOTOR CO. • FRUEHAUF TRAILER COMPANY • FULLER MANUFACTURING CO. • THE GALION IRON WORKS & MFG. CO. • GAR WOOD INDUSTRIES, INCORPORATED • GENERAL ROAD MACHINES, INC. • GMC TRUCK & COACH DIVISION (GENERAL MOTORS CORPORATION) • GOOD ROADS MACHINERY CORPORATION • DETROIT DIESEL ENGINE (DIVISION GENERAL MOTORS CORP.) • DIAMOND IRON WORKS, INC. (GOODMAN MANUFACTURING COMPANY) • R. E. DIETZ COMPANY • EAGLE IRON WORKS • THE FRANK G. HOUGH CO. • HUBER-WARCO COMPANY • HYATT BEARINGS DIVISION (GENERAL MOTORS CORPORATION) • HYSTER COMPANY • INGERSOLL-RAND CO. • INTERNATIONAL HARVESTER CO. • IOWA MANUFACTURING CO. • JACKSON VIBRATORS, INC. • THE JAEGER MACHINE COMPANY • THE JEFFREY MFG. CO. • THE C. S. JOHNSON COMPANY • JOY MANUFACTURING CO. • KALAMAZOO DIVISION (THE NEW YORK AIR BRAKE COMPANY) • KOERING COMPANY • KOHLER COMPANY • THE GORMAN-RUPP CO. • W. E. GRACE MFG. CO. • THE HANSON CLUTCH & MACHINERY CO. • HARNISCHFEGER CORPORATION • THE HELTZEL STEEL FORM AND IRON CO. • HENDRIX MANUFACTURING CO., INCORPORATED • HERCULES GALION PRODUCTS, INC. • HERCULES MOTORS CORPORATION • HETHERINGTON & BERNER, INC. • HIGHWAY EQUIPMENT CO., INC. • HOMELITE DIVISION (TEXTRON AMERICAN, INC.) • McKIERNAN-TERRY CORPORATION • MINNEAPOLIS-MOLINE COMPANY • MURPHY DIESEL COMPANY • H. P. NELSON IRON WORKS, INC. • NORDBERG MFG. CO. • NORTHWEST ENGINEERING COMPANY • THE OLIVER CORPORATION • LE ROI DIVISION (WESTINGHOUSE AIR BRAKE COMPANY) • R. G. LE TOURNEAU, INC. • LE TOURNEAU-WESTINGHOUSE COMPANY • LINK-BELT SPEEDER CORP. • LITTLEFORD BROS., INC. • MACWHYTE COMPANY • MARION POWER SHOVEL COMPANY • MASTER VIBRATOR COMPANY • SMITH ENGINEERING WORKS • STANDARD STEEL CORPORATION • STANDARD STEEL WORKS • STOW MANUFACTURING COMPANY • TAMPO MANUFACTURING CO. • THE TEXAS COMPANY (ASPHALT SALES DEPARTMENT) • THE THEW SHOVEL CO. • THE OWEN BUCKET COMPANY • PETTIBONE MULLIKEN CORP. • PIONEER ENGINEERING WORKS, INC. • PORTLAND CEMENT ASSOCIATION • JOHN A. ROEBLING'S SONS COMPANY • SCHIELD BANTAM COMPANY, INC. • SCHRAMM, INC. • SEAMAN-ANDWALL CORPORATION • SEAMAN ENGINEERING & RESEARCH CO. • S K F INDUSTRIES, INC. • THE WHITE MOTOR COMPANY • WOOLDRIDGE MANUFACTURING DIVISION (CONTINENTAL COPPER & STEEL INDUSTRIES, INC.) • THE TIMKEN ROLLER BEARING COMPANY • THE TORRINGTON COMPANY • TWIN DISC CLUTCH COMPANY • UNION CHAIN & MANUFACTURING COMPANY • UNION WIRE ROPE CORP. • UNIT CRANE & SHOVEL CORP. • UNITED STATES STEEL CORPORATION • WALTER MOTOR TRUCK COMPANY • THE WARNER & SWASEY COMPANY • WAUKESHA MOTOR CO. • WISCONSIN MOTOR CORPORATION • WORTHINGTON CORPORATION

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See machines at work, actually doing the jobs which you face each day. See methods proved before your eyes.

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The contacts you make will prove of inestimable value. Experts from every part of the world—every one ready to talk about your problems.

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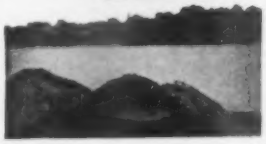

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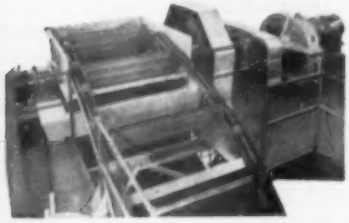

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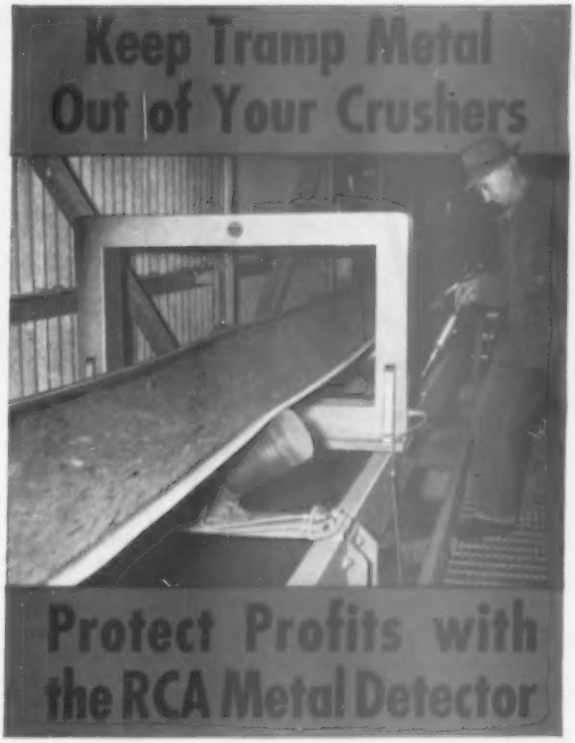
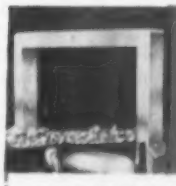


Installed around your conveyor, the RCA Electronic Metal Detector readily detects those villains that break off and eat up profits in downtime—manganese steel dipper teeth (which no magnet can dislodge), drill bits, tool steel parts.

PREVENTS TROUBLE—The Electronic Detector is on the job, every moment of the time, probing out tramp metal, both magnetic and non-magnetic. Wired to sound an alarm, spray-mark metal area, or stop a conveyor when trouble threatens, it prevents tough metal fragments from causing damage to the crushers later on.

No more burning out wedged tramp metal or replacing shafts damaged by stray metal parts. With the RCA Metal Detector in operation, these threats to production can be eliminated.

PAYS FOR ITSELF—By reducing downtime and production losses, and saving high-cost machinery replacements, the RCA Metal Detector protects profits and quickly pays for itself!



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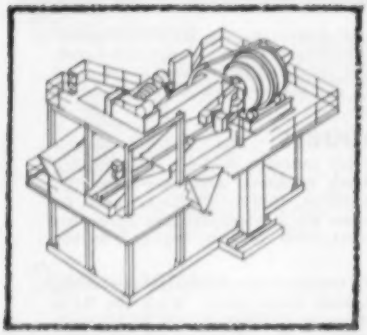

WEMCO
MOBIL-MILLS
are the most widely preferred HMS plants because they provide ***proven design at predetermined cost — trouble-free operation from the first day.***

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WESTERN MACHINERY COMPANY

650 Fifth St., San Francisco 7, Calif.

Offices and representatives in principal cities of the United States and Canada and in major countries throughout the world.

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Heavy-Media Solves Gravel Problem

(Continued from page 77)

method, requires 10-min. until the system returns to equilibrium at the required specific gravity. The second method increases the amount of medium in the circuit and raises the gravity in several minutes.

The HMS circuit at Killins has been run experimentally at a 2.45 sp. gr. It was found in the test that the sink product ran three percent deleterious, still within specifications. Since there is a ready market for the float product, Killins Gravel Co. decided to maintain the gravity at 2.50 and produce a sink with two percent deleterious. This means that customers are getting the best gravel that can be made economically.

At present, the medium is two parts magnetite by volume to one part ferrosilicon. It is planned to boost the amount of magnetite until the increased viscosity, which higher percentages of magnetite induce, is such that cleaning efficiency is improved. The spur to upping the amount of magnetite is the price differential. Magnetite costs $39.50 per ton and ferrosilicon is $126.50 per ton. About ½-lb. of media is lost for each ton of feed treated.

Medium is removed from the float and sink on a 6- x 16-ft. Allis-Chalmers vibrating screen that has a divider splitting it lengthwise. The screen area for the float product is 18-in. wide. Medium drains off the products into the media return tank in the first 6-ft. of screen length. Sprays over the remaining 10 ft. screen section wash the rest of the medium off the product.

Ferrosilicon is highly abrasive and its use wore the original screens excessively. A Bixby-Zimmer stainless-steel ¼-in. slot screen is used, and little or no wear is apparent.

Finished sink is moved by belt to a Telsmith screen that separates 4A (2- x ½-in.) and 10A (1- x ¼-in.) stone. It then may go to a compartmented, 60 cu. yd. Butler bin or may be diverted to a chute. The chute delivers material to a Barber-Greene radial stacking conveyor with a 10 deg. arc. A 38-ft. high storage pile eventually will be built and will provide 30,000 tons of gravel for winter use. A timer is incorporated into the electrical circuit to keep the stacking belt running until it is free of gravel.

Finished float is discharged onto a belt and carried to a bin for later trucking to stockpile.

Marketing of sand, gravel and ready-mixed concrete has been pushed through an aggressive public relations program. The HMS unit has been well publicized regionally in newspapers and by visitation of such groups as Kiwanis and Rotary clubs and other interested persons. The plant and pit areas are neat and landscaping around the office impresses the visitor with the efforts of Killins Gravel Co. to make the working area as attractive as possible.

Using the price of the previously marketed 10A unprocessed sized stone as a standard, HMS sink pebble is 27 percent higher and float is 6 percent lower in price.

In addition to the aggregate, ready-mixed concrete is produced. Two Butler ready-mixed concrete plants are operated, one a dry plant and one a central mix plant. All 22 mixer trucks are Willard-Hercules, power-take-off units with the newer trucks having 3½-cu. yd. mixers mounted on Ford 700, radio-equipped trucks. A 65-watt Motorola base station with two remote and 14 mobile units has proved a great help in and around the plant and pits and has materially assisted in speeding ready mixed concrete delivery.

Officers are Ray C. Killins, president; Louis E. Burke, vice-president and David A. Killins, secretary-treasurer.

Start Ontario Cement Plant

ST. LAWRENCE CEMENT CO., Villeneuve, Quebec, Can., started production recently at its $27 million Clarkson, Ontario, plant. With an annual capacity of 3,000,000 bbl., the plant was completed three months ahead of schedule. Two kilns, a storage structure, mill building, four slurry basins, packing plant, crushing plant, and power station are among the facilities designed by the company's own staff, headed by H. Egger, plant manager; J. Hiltmann, chief engineer; and H. Frymann, chief mechanical engineer.

Receive Safety Awards

NATIONAL SAFETY COUNCIL presented Gypsum Association and Portland Cement Association with Awards for Association Safety Activity during the National Safety Congress, Chicago, Ill., October 22-26. The two associations were among 13 groups so honored for having better-than-average progress in accident prevention and for excellence and balance in their safety programs.

Enter 1051 on Reader Card

Handy Tournatractor services 3 shovels over widely scattered work area in 6000′ x 4000′ limestone pit. It pushes in shallow toe ahead of shovel for faster loading. It's fast enough to follow the dipper in and out to clean-up truck and dipper spillage.

2 rubber-tired tractors

. . . clean-up around shovels

. . . doze rock between shovel swings

. . . service 10 to 12 crushed-stone stockpiles

. . . make 2-mile swing service cycles

At Material Service Corporation's Thornton, Illinois quarry—the largest commercial quarry in the world—over 3,000,000 tons of limestone are removed yearly. To speed shovel clean-up, dozing, and other jobs at this huge 6000′ x 4000′ pit, Material Service Corp. uses 2 fast, 17 mph, rubber-tired, 208 hp Tournatractors.

Make 2-mile swing cycle

A major advantage of the rubber-tired Tournatractor on this assignment is its ability to travel fast at speeds to 17 mph, from shovel to shovel . . . scattered .2, .9 and 1 mile apart . . . making a swing cycle for clean-up service of over 2 miles. Instant-shift, constant-mesh transmission enables this big rubber-tired dozer to move in fast and back away in a hurry, without delaying the shovel cycle. Between shovel swings, the versatile tractor dozes in scattered rock to keep material in good shovel-loading position . . . also pushes back toe of blasted material from bank ahead.

Tires eliminate abrasive wear on multiple track parts

Big, low-pressure rubber tires with heavy ground-gripping action make Tournatractor safe and sure-footed. Tires roll *over* abrasive materials . . . do not grind *in* them. They cushion the ride for the operator, and reduce maintenance to a minimum, because 4 wheels do the work of some 500 wearing parts in a crawler-tractor's track mechanism.

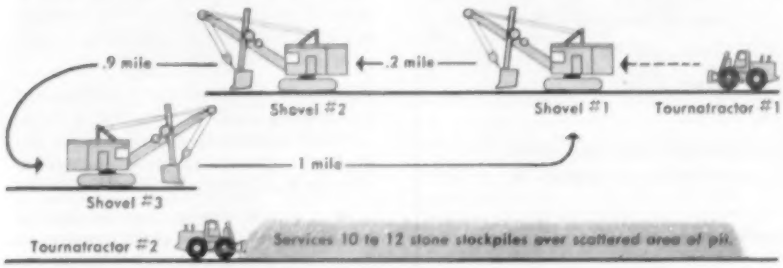
Power from the Tournatractor's 208 hp diesel moves on high-speed, anti-friction bearings sealed in oil. With this all-gear drive you have no chains or tracks to stretch, snag, or wear. Power goes direct from transmission to drive wheels. As a result, there are less friction losses and wear due to hundreds of open parts grinding in dirt or abrasives.

Before you buy a tractor for your clean-up, dozing, servicing, maintenance, or other jobs, investigate the high speeds, lower maintenance, and greater mobility that Tournatractor can give you. It frequently replaces 2 or 3 crawlers in one pit!

Fast 17 mph speeds enable Tournatractor to travel anywhere in the pit, dumps, stockpile area, or plant, with only a few minutes moving delay between assignments. One man, one machine, can make two or three cycles, to cover all clean-up assignments per shift. Often, several near-by pits are serviced by one of Material Service's Tournatractors.

Tournatractor maintains and services 10 to 12 crushed stone stockpiles located over a widely scattered area of the quarry. Equipped with 11′ 4″ wide, 3′ 7″ high bulldozer blade, Tournatractor dozes bladeful of abrasives.

Tournatractor — Trademark Reg. U.S. Pat. Off. T-940-Q-b



LeTourneau-WESTINGHOUSE Company, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

ARBA See you at the ROAD SHOW • Chicago • January 28-February 2, 1957

KANSAS TURNPIKE

(Continued from page 78)

put is stockpiled by two 8-ton Dumptors and a 10-cu. yd. truck. These machines are hard pressed to keep up with the fast stacker conveyor, which puts 2-in. minus material into the bin at a peak rate at 400 t.p.h.

To lay the material down fast and accurately, James-McKinney has arranged with Seago Trucking Co. of Seagoville, Texas to haul the crushed stone. Seago uses 45 identical truck and trailer units. There is a 25-mile dead haul to get the loads to the job. But the big 30-ton GMC truck-trailers have the advantages of identical loads and constant dumping. That will reduce the amount of blade leveling when sand is added at the turnpike. The mix is blended, and 50-ton pneumatic compactors roll the crushed rock down to 95 percent of modified AASHO density.

The James-McKinney combine has set what is believed to be the Kansas Turnpike crushing record. It is one of the best crushing records ever set in damp, midwestern limestone. The job is ahead of schedule: and ties in with the planned Turnpike completion target date.

The new toll facility, which is being built under the supervision of the Kansas Turnpike Authority, begins at Kansas City, runs west through Lawrence and Topeka, heads southwest through the vicinity of El Dorado, Emporia and Wichita, and then runs almost due south to the Oklahoma state line.

TRULITE AGGREGATES

(Continued from page 73)

the rotary table feeder under the surge pile, and ammeters for the critical motors (for the hammermill, pelletizer, stoker grate, dryer fan, and furnace fan). The control panel also contains start-stop buttons for all plant equipment, and rheostats for all variable speed drives.

At the discharge end of the stoker, the clinker cake (which has lost one-half its weight by burning) is subjected to water sprays before dropping to an inclined 4- x 65-ft. apron conveyor, which discharges to a 4- x 6 ft. Gyrex single-deck screen. Oversize (plus ⅜-in.) is reduced to minus 3-in. aggregate by a 24- x 36-in. McNally-Pittsburgh single roll crusher having a drag tooth crusher roll. The material is taken to stockpile by an 18-in. belt conveyor, 85-ft. centers, which carries Goodrich heat-resistant belting. Minus ⅜-in. material from the screen, consisting largely of unburned particles, is not recycled; instead it is sold for ice control on highways or is wasted.

Loading to truck or rail car is handled by a Northwest 1½-cu. yd. crane. Additional crushing and sizing of the aggregate has been handled for the company at a concrete block firm in Ceredo. Presently, however, the company is installing a rim grinder, screening facilities, and two concrete-stave silos. The Trulite firm is strategically located with respect to transportation facilities, being served by highway, three railroads (B. & O., N. & W., and C. & O.), and the Ohio River. Barge shipments on the Ohio River are loaded at the nearby Truax-Traer coal dock.

Design engineering of the Trulite plant was done by Templeton-Mathews, Corp., Terre Haute, Ind. All electrical controls and the majority of motors were supplied by Westinghouse. Fused switch starters are used for motors under 3 hp., and combination breaker-starters for larger motors.

The plant is run around clock, seven days a week, with six operating employees, including four furnace men (one per shift, with one off), a clean-up man, and a crane operator. The latter employe works during the day shift, and besides loading trucks, etc., he also operates the drag scraper, bringing up enough coal refuse to the drying area for 24-hour operation.

Officers of Trulite Corp. include C. N. Howard, president; C. A. Grace, vice-president; and W. E. Parsons, secretary.

Highway Highlights

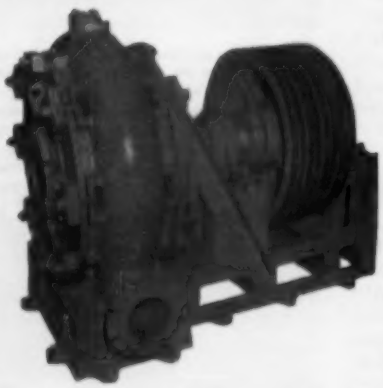
● GOVERNOR CRAIG COMMITTED INDIANA to a $16 million highway plan linking Indiana and Illinois toll highway facilities in the Chicago area. Indiana will build an 11-mile freeway through Gary and a 2½-mile road through Hammond. Construction of both projects may start next year.

● THE FLORIDA STATE DEVELOPMENT COMMISSION began marketing a $5.5 million revenue bond issue on September 20 which will finance bridge construction in Sarasota County.

● UTAH'S STATE ROAD COMMISSION engineering staff has drafted a $10,679,000 construction program for interstate highways in Utah during the current fiscal year.

● UP FOR CONSIDERATION by the West Virginia Turnpike Commission is an adjustment of truck tolls on the entire 88 mile stretch from Beckley to Charleston. The lowering of tolls would encourage more trucks to use the turnpike.

MECKUM ***Material Handling Pumps***



★ **Low initial & operating cost.**

★ **Engineered individually for hydraulic efficiency and simplicity of maintenance.**

★ **All wearing parts made of alloys to suit various types of materials pumped.**

★ **Ease of assembly of replacement parts reduces shut down time.**

Another progressively engineered product. In sizes from 4" to 30".

Also manufacturers and suppliers of complete dredges, pipe, fittings and equipment necessary to efficient production of materials.

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53 W. Jackson Blvd., Chicago 4, Ill. Dayton Road, Ottawa, Ill.

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After drilling and blasting operations are finished, "C" Rear-Dump moves in to begin clean-up. Daily, the three machines move 1 "round" or 1000 tons of loose limestone. At this rate, tunnel advances about 12 lineal feet per day. In the confined underground tunnel, "exhaust scrubbers" (shown on this machine) made exhaust gas harmless.

Here's where maneuverability really pays off!

Recently the Riverside Cement Co., Los Angeles, California, began tough tunneling operations in their underground limestone quarry at Crestmore, California. Handling all hauling on this project are 3 C Tournapull Rear-Dumps.

Extremely cramped quarters, adverse grades, long hauls on narrow, winding roads, are major problems testing men and machines every day. However, the rugged "C" Rear-Dumps are doing an outstanding job on this rough assignment. Pictures on this page show how "C's" maneuverability pays off when meeting difficulties like these.

Working in extremely cramped quarters like this, big machines turned in dump position which moves rear wheels forward for extremely short wheel base. "C" in "dump position" (shown in this picture) can turn within 20' 8". Its 11' 4" height and 11' width gave ample clearance for the tunneling operation shown here.

Loaded in 6 to 7 passes of 1½-yard Marion shovel, Rear-Dumps averaged 18 tons of limestone per load. 10'4" overall width-of-bowl gives dipper a big "target", makes loading faster, and easier. Minimum spillage was a major advantage in the tunnel work. These "C's" have 18-ton capacity. The new model "C" has 22-ton capacity.

Floor of this tunnel has 10% adverse grades (7% on curves), making for heavy hauling in close quarters. Torque converters on units automatically balance power to load, make operation easier for operator, cut loss of momentum in shifting, prevent killing engine by inexperienced drivers. They also cut shocks in power train and reduce maintenance.

On the entire 6600' cycle, units had only 500' of level haul. The entire route was narrow and winding. Multiple disc air brakes, using 3,763 sq. in. of braking surface, made maneuvering easy . . . gave operator more confidence on narrow turns. Push button electric controls also contributed to ease of operation and safety.

At a touch of a switch by operator, hoist motor is activated. Body lifts quickly . . . 18-ton load is dumped easily and fast. Body swings below and behind rear wheels, preventing material from piling under unit. Front wheel drive gives operator control of unit at all times, even when dumping over edge of steep embankment like this.

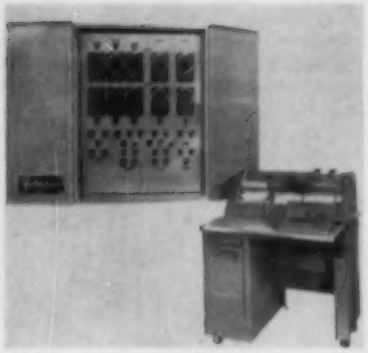
Tournapull—Trademark Reg. U.S. Pat. Off. R-873-Q-b

LeTourneau-WESTINGHOUSE Company, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

ARBA

See you at the ROAD SHOW • Chicago • January 28-February 2, 1957



Proportioning System

RICHARDSON SCALE CO., Van Houten Ave., Clifton, N. J., announces the combining of its Select-O-Weigh control system with an IBM Type 526 summary punch. The fully automatic electronically controlled proportioning system now automatically can record formulas and weighings on a summary punch card by means of a recording device interlocked with the action of the panel.

The Select-O-Weigh system illustrated controls three scales, with three weight selectors for the first scale, and one each for the second and third. Each of these selectors can be selected in or out.

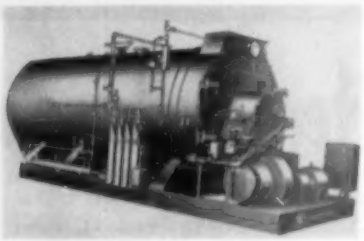
The new feature permits the user of such equipment to process billings, maintain inventory control and keep similar records of weighing and proportioning by processing punched cards through an IBM business machine. The system is designed for full-automatic or semi-automatic operation.

Enter 120 on Reader Card

Swivel Loading Nozzle

FULLER CO., Catasauqua, Penn., announces a swivel nozzle designed to augment the rapid pneumatic loading of Airslide cars, bulk vans and Truck-A-Bins. The nozzle consists of a 2-ft. long x 3-in. dia. bent aluminum tube fitted into the center of a standard or custom designed aluminum hatch cover. A rubber gasket provides an air-tight seal. It is reported that the swivel nozzle enables the loader to get the maximum amount of material into the vehicle and evenly distribute the material within, working from one loading point, eliminating the necessity of moving the car. When secured to the hatch opening, the nozzle is aimed successively at points throughout the car by a positioning handle on the section of pipe above the hatch cover. The pipe can be turned 360 deg.

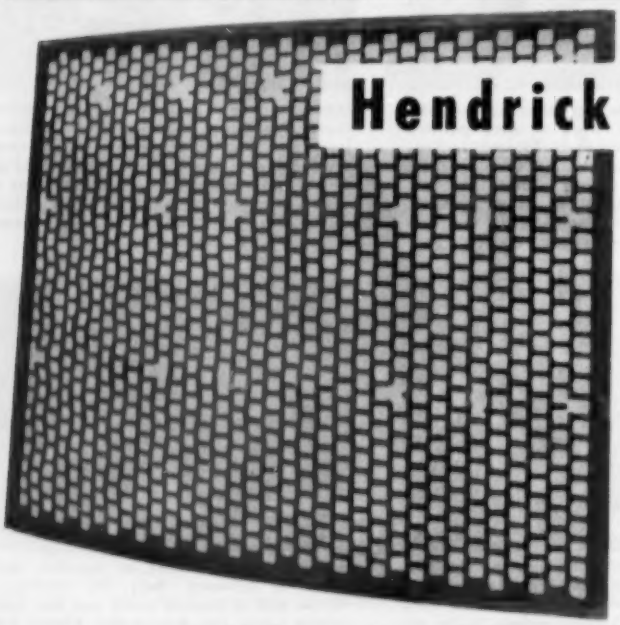
Enter 121 on Reader Card



Steam Generator

CYCLOTHERM DIVISION, National-U. S. Radiator Corp., 164 E. First St., Oswego, N. Y., announces a 750-hp. package steam generator, model

(Continued on page 125)



Hendrick H Quality Steel

Passes Every Test!

One quarry had trouble screening hard "Petersburg Granite" . . . screens wore out too quickly and had to be replaced. Then they switched to *H* quality perforated steel. Result? 400,000 tons of stone passed over one screen before replacement was necessary. Another quarry put an *H* quality steel screen to work . . . and after 3,000 hours of heavy-duty operation there wasn't any noticeable trace of wear!

Secret of Hendrick's success is our 80 years of experience in selecting and specifying the various analyses of steel best suited for the crushed stone industry. Hendrick perforated *H* quality steel is supplied in any size or shape of openings. For more information write Hendrick direct.

Hendrick
MANUFACTURING COMPANY
47 DUNDAFF STREET, CARBONDALE, PA.
Sales Offices in Principal Cities

Hendrick—Pioneer Perforator of Special Quality Steels for 80 Years!

Perforated Metal • Perforated Metal Screens • Wedge-Slot and Hendrick Wedge Wire Screens • Architectural Grilles • Mitco Open Steel Flooring • Shur-Site Treads • Armagrids • Hendrick Hydro-Dehazer

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Why More Hours are Working Hours With Bucyrus-Erie Walking Draglines

Close attention — during manufacture — to the little things that mean outstanding quality — that's one big reason Bucyrus-Erie walking draglines give you the most in actual productive time on your digging or stripping operations. Take the steels Bucyrus-Erie "walkers" are made of, for example. To the naked eye there is very little difference, in comparison with other machines. But a microscopic examination of vital parts would show the many important *little* differences that together make such a *big* difference in performance on the job.

At Bucyrus-Erie, hammer forging, annealing, heat treating, case hardening, and flame hardening — each process is applied where it contributes most to strength, toughness, and hardness. The most modern arc welding is used, plus stress relieving by heat treating, where this will contribute greater strength and longer life.

Long-reaching, big-capacity Bucyrus-Erie walking draglines are available in a wide range of sizes to fit your working requirements. Talk over your excavating problems with the Bucyrus-Erie sales representative in your area — he's well qualified to help you select the right machine for your particular needs.

101L56

BUCYRUS ERIE

South Milwaukee, Wis.

A laboratory technician burns chips from a foundry test bar to determine carbon content of the steel. Each heat is triple tested to ensure its meeting specifications.

Coral rock, used for aggregates, is excavated by this Bucyrus-Erie 200-W walking dragline, carrying a 6-yd. bucket. Machine owner is the Miami Crushed Stone Co., Miami, Fla.

Enter 1060 on Reader Card

CF&I WICKWIRE ROPE A CF&I PRODUCT

Your Wickwire Rope Distributor and our metallurgist . . . work together for you

This metallurgist—who is responsible for the quality of our rope wire—is with your Wickwire Distributor every time he makes a call.

True, he's physically in his laboratory, supervising the thorough testing *of both ends of every coil* of wire to assure uniformity throughout the coil. But, whenever your Wickwire Distributor calls, he has the full assurance that metallurgists like this are constantly making sure that the product has the right chemical and physical properties to give long, dependable service.

It's just one more reason why your Wickwire Distributor knows he's got top-quality wire rope, slings and strand to sell . . . and that these products will serve you well.

4084

A PRODUCT OF THE COLORADO FUEL AND IRON CORPORATION

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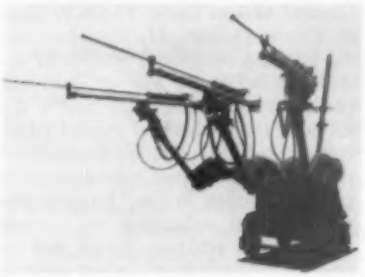
C-26,000, which is said to deliver 26,000 lb. of steam per hour at over 80 percent efficiency. Patented Cyclonic Combustion principle keeps dimensions of the new boiler down to 28-ft. x 9-ft. 6-in. x 10-ft. 8-in. It is designed for heavy oil or gas, but can be adapted to burn either LP-gas or light oil. Its makers assert that the Cyclotherm C-26,000 makes it possible to utilize package boilers for many industrial processing loads formerly considered too big for a single package boiler.

Enter 126 on Reader Card



Three-Boom Drill

THOR POWER TOOL CO., 181 N. State St., Aurora, Ill., has developed a completely air-operated three-boom mining drill jumbo. The machine requires only air hose connections, and can be operated by one man. It is reported that the new jumbo can operate at maximum efficiency in a 18- x 10-ft. area. It weighs 7800 lb., completely equipped with drifter rock drills and mountings. The three booms can support either power feed, chain feed or air bar feed mountings.

Enter 127 on Reader Card

Loader, Back Hoe

MID-WESTERN INDUSTRIES, INC., Wichita, Kans., announces the adaption of the Davis Loader and Davis Back Hoe for the new International 300 Utility LP gas model tractor. The models fit the new tractor because there is no bracing to fit across the top of the tractor where the LP gas tank is installed. The loader and backhoe utilize a common hydraulic system and their framework fits together so that they form a protective cradle around the tractor. The Davis Model 102 Loader features an 11-cu. ft. material bucket with multiple attachments. The Davis Model 185 Backhoe has a right angle digging feature, and an operator's seat and controls that revolve with the boom. The wide frame has two individually controlled hydraulic stabilizer feet for leveling up on slopes and for safety purposes.

Enter 128 on Reader Card

Tandem Trucks

AUTOCAR DIVISION, The White Motor Co., Cleveland 1, Ohio, has introduced new lightweight models DC-102TL and DC-10264L tandem axle trucks. A weight saving of 20 percent is accomplished in the cab structure

(Continued on page 126)

THIS SAND OPERATOR KNOWS NOW . . .

It's better to

DO IT RIGHT THE FIRST TIME!

Yes, he started the season with a sparkling new classifying plant . . . with "factory" assurance it would deliver his specifications. But, in operation, he found he was short of much needed minus 50 mesh. And on into the season these valuable fines were filling his pond and creating a costly disposal problem.

To lick this problem he took the advice of friends and installed an Auto-Vortex Bowl Classifier. And with it he recovered "from 4 to 20 Tons per hour" of the much needed minus 50 mesh sand. He improved his gradation, and sold this sand, instead of paying to haul it away . . . a triple benefit.

This operator's story typifies the industry. Over 55% of Auto-Vortex sales are in replacing or supplementing plants of other manufacturers that have failed to do the complete job. And the sad part of the story . . . as this operator discovered . . . he could have done it right at the start by installing a complete Auto-Vortex plant, Cones and Bowls, at less cost and with greater operating efficiency. If you have a gradation or recovery problem, why not check the Auto-Vortex system thoroughly and DO IT RIGHT the FIRST TIME!

CHARLES E. WOOD COMPANY

906 NORTH WATER ST. • MILWAUKEE 2, WISCONSIN

AUTO-VORTEX CLASSIFIERS are fully described in a Wood Company bulletin . . . yours for the asking. Also available are authentic records of plants with problems like yours, showing how A-V Classifiers can really "classify" . . . whatever capacity or required specifications. Call or write us today!

Enter 1103 on Reader Card

by the use of aluminum. Also employed in various parts of the engine, aluminum is used in chassis cross-members, transmission case and cover, fuel tank, front and rear axle hubs, hood and front bumper. The new models are built primarily for highway applications.

Enter 122 on Reader Card

Yard Crane

LITTLE GIANT CRANE & SHOVEL, INC., E. Sixteenth and Howard Drive, Des Moines 13, Iowa, announces model "SPA", ½-cu. yd. self-propelled yard crane with patented ball-bearing turntable. The single-engine crane is equipped with hydraulic Servo steering, hydraulic power braking, and two-speed, four-wheel drive. It will turn in less than a 60-ft. dia. circle, and provides 360-deg. visibility for the operator. The jack shaft, swing shaft, and cable drum shafts all rotate on Shafer Concavex roller bearings sealed for life. It can be equipped with a precision high speed, power up-power down boom hoist.

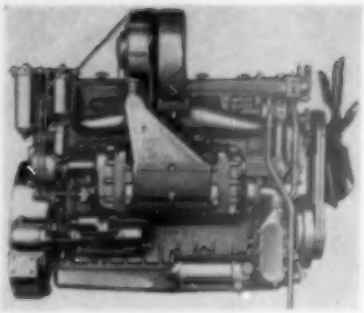
Enter 123 on Reader Card

Goose-Neck Attachment

SCHIELD BANTAM CO., Waverly, Ia. announces a new 15-ft. goose-neck crane attachment designed for mounting on the Self-Propelled Model CR-35 Bantam. Low clearance for in-plant and yard materials handling is provided by the new attachment which features a minimum working clearance height of 10-ft. 5-in. when so mounted. Working radius at this clearance height is 17 ft. 6 in., and travel-with-load crane capacity is listed at 4675 lb.

The 15-ft. box boom has the center line of the top section off-set 25-deg. by a wedge which can be removed to convert to straight-boom operation. The bottom section is 8-ft. 11¾-in. long (pin to frame) and the top section is 7-ft. ¾-in. long (frame to sheave). The distance between the boom foot pin and the center line of the boom tip sheave is 15 ft. 2½-in.

Enter 124 on Reader Card

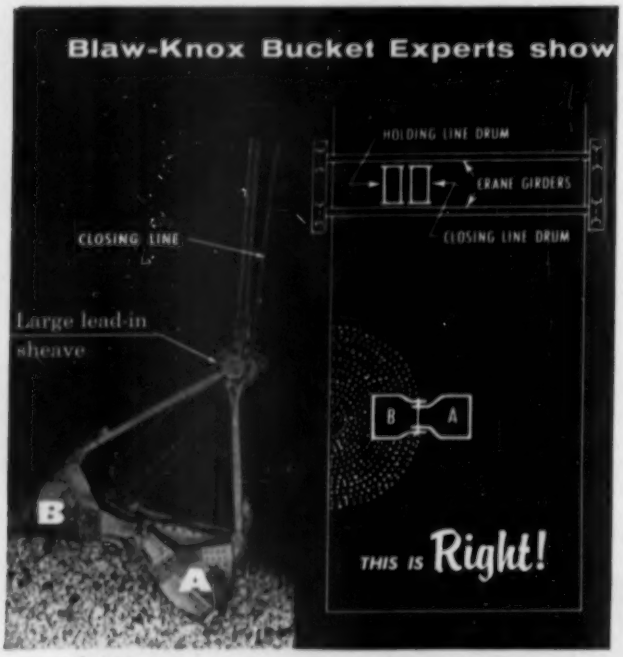


Diesel Engines

DETROIT DIESEL ENGINE DIVISION, General Motors Corp., 13400 W. Outer Drive, Detroit, Mich., announces the addition of three Turbopower engines to Series 71 line of industrial two-cycle diesels. A four- and a six-cylinder fan-to-flywheel engine (illustrated) and a six-cylinder base-mounted power take-off unit have features of previous models in the 71 series, plus a single-shaft, exhaust-driven turbine.

Air intake ports are larger and extend to a higher level on the cylinder liners, and the number of exhaust valves in each cylinder have been increased to four. The four-cylinder engine has a rating of 171 basic hp. at 2300 r.p.m. and the six-cylinder is rated at 236 basic hp., 2100 r.p.m.

Enter 125 on Reader Card



MAXIMUM CABLE LIFE

Users of overhead traveling bucket cranes report amazing cable life increases as a result of applying the practical recommendations, graphically presented with fourteen illustrations of right and wrong bucket applications in Blaw-Knox Bulletin 2510.

This bulletin illustrates and describes proper and improper relationship between:

1. The preferred or required direction of bucket opening.
2. Location and contours of the piles of material.
3. The position of the holding and closing drums in the overhead crane trolley.

An understanding of this relationship has invariably lead to marked improvement in cable life and bucket performance. Send for your copy of form 2510 today.

50th Anniversary 1906 1956

BLAW-KNOX COMPANY

BLAW-KNOX EQUIPMENT DIVISION

Pittsburgh 38, Pa. • Offices in Principal Cities

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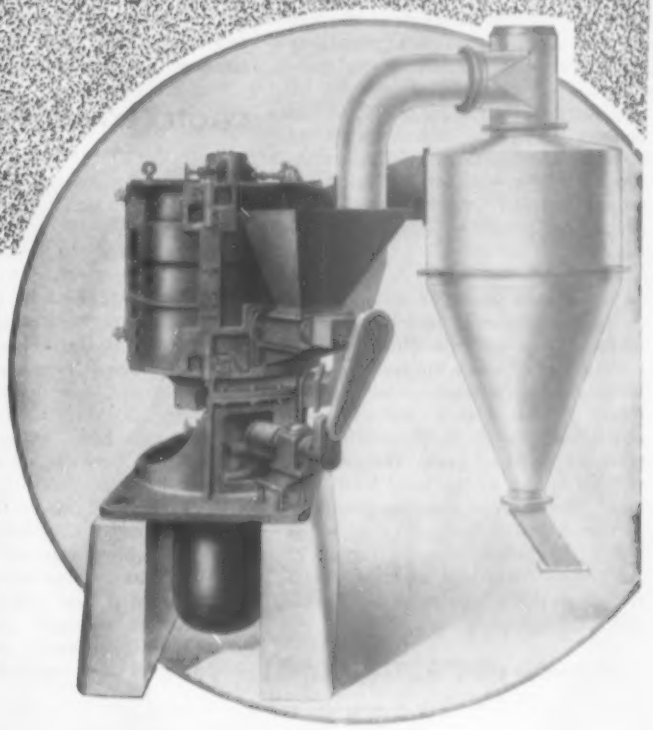
HIGH-FINENESS PULVERIZING

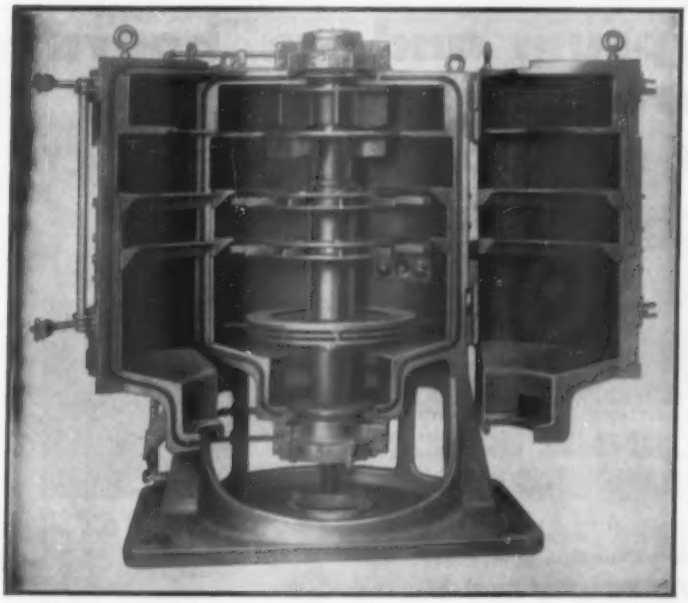
with the Raymond VERTICAL MILL



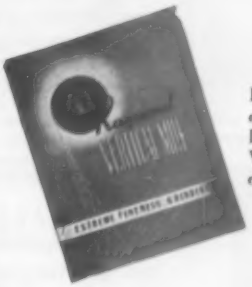
THIS modern design pulverizing unit offers a direct method of producing powdered materials in the low micron sizes by a single pass thru the machine with whizzer air separation to insure a uniform finished product.

It saves time in handling different jobs. When changing from one material to another, clean-outs and new set-ups can be made quickly. The operation is clean, dustless and automatic. Whizzer separation offers easy, instant fineness control over a wide range.

The mill gives excellent results on clays, talc, earth colors, cobalt oxide, vermiculite, and soft nonmetallics. In scores of installations, the Raymond Vertical Mill has proved its unusual economy in making finest grades of materials.



- Hinged doors open wide for complete accessibility
- Double revolving whizzers maintain uniform fineness
- Simplified design . . . no gimmicks, close clearances or complicated adjustments



Details and applications in new Bulletin No. 78. Write for your copy.

COMBUSTION ENGINEERING, INC.

Raymond Division

1307 NORTH BRANCH ST.
CHICAGO 22, ILLINOIS

SALES OFFICES IN PRINCIPAL CITIES

Combustion Engineering-Superheater Ltd., Montreal, Canada

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DIRECTORS' MEETINGS

(Continued from page 106)

edge of the program and his extreme interest in it. "Problems of the highway program are far from solved," he said. Negative features of the bill are the Davis-Bacon Act provisions and the imposition of the federal government in the field of weights of vehicles. In his opinion, people of the country haven't much conception yet of what the Interstate system envisages. When completed, it will be a miracle of all the world — largest peacetime program undertaken by man.

Mr. Knowlton urged that progress of government operation and planning in the future should be watched, particularly decisions on equitable distribution of the tax burden. He cautioned that all interests—roadside, national defense, truck industry and others—be watched to see that no section is imposed upon. The problem will be serious at the local level, and local officials need united support.

The highway program, according to Mr. Knowlton, was satisfaction of his dreams come true and stands as a tribute to the processes of representative government.

Convention plans for 1957 were discussed. The joint meeting will be held at Hotel Statler, Los Angeles, Calif., on February 11 to 14. Plans for the 1958 joint convention and exposition were presented by C. B. Laird of Des Moines, Iowa, and A. C. Thomas of Columbus, Ohio. The board approved proposed plans offered by these Manufacturers Division chairmen.

CELOTEX EXPANSION

(Continued from page 86)

to mixing. Among the additives used are dolomitic lime hydrate, sisal, fiber, perlite, wood fiber, etc. A hair picker is used to shred the sisal fiber, and a Buffalo hammermill disintegrates the wood fiber. Mixing time is 2 min. or longer. Each packer discharges to a 3-x 16-ft. flexible spring conveyor supplied by Power-Curve Conveyor Co. The bags are then hand-trucked to rail or truck loading or to a large storage area near the packers. Spill from the packers returns to the mixers via small bucket elevators.

New plant facilities at Port Clinton were designed by Johnson and Johnson, consulting engineers, Chicago. Western-Knapp Engineering Co. provided the sink float plant. Conveyors in the plant additions, totaling more than 1600 ft. in length, and conveyor components were supplied by Barber-Greene Co. Electrical equipment, including control panels, were supplied by Continental Electrical Equipment Co.

A complete line of Celo-Rok gypsum products is manufactured at the Port Clinton plant, with the exception of gypsum block. Among the products are¼-, ⅜-, and ½-in. wallboard (in lengths from 5 ft. to 14 ft.), ⅝-in. FiRock wallboard, ⅜- and ½-in. lath (including perforated and tongue and groove), sheathing, Acoustilock board and various types of bagged plaster, including Plastolite (made with perlite).

Celotex Corp., with headquarters in Chicago, operates gypsum products plants at Port Clinton, Hamlin, Texas, and Fort Dodge, Iowa, and a mineral wool plant at Lagro, Ind. Presently a new $5,000,000 gypsum plant is under construction at Fort Dodge.

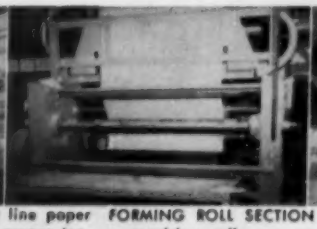
Officers include O. S. Mansell, president; H. W. Collins, executive vice-president; C. L. Christensen, vice-president, chairman of the executive committee: F. A. Irvine, Marvin Greenwood, and G. C. Snyman, vice-presidents; C. W. Johns, treasurer; Richard Thompson, secretary; Wm. D. Becker, controller; D. W. Miller, manager of gypsum sales.

At the Port Clinton plant, R. E. Stetson is works manager.

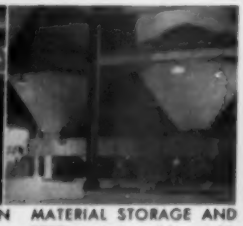
EHRSAM gypsum and wallboard processing machinery

...WILL MODERNIZE YOUR PLANT FOR GREATER EFFICIENCY AND BETTER PRODUCTS

PAPER SECTION for board line paper is fed to board line with proper tension — giving a smooth surface to finished product.



FORMING ROLL SECTION — precision rolls run on anti-friction bearings — giving board a uniform thickness throughout.



MATERIAL STORAGE AND FEED — stucco bins with drag feeders store and transfer sufficient material for constant operation.

Ehrsam Lathe punch, can be furnished in Reciprocating or Rotary style with board speeds up to 300 ft. per min.

Ehrsam Calcining Kettle to reduce the raw gypsum to workable condition. Several sizes are available in gas or oil fired.

Enter 1064 on Reader Card

Ehrsam equipment will enable you to get the greatest returns from your plant by cutting maintenance and operating cost. Remember, if you are thinking of one machine or a complete plant, our staff of Engineers is available to you.

The J. B. EHRSAM & Sons Mfg. Co.
ENTERPRISE, KANSAS

here's the Biggest News in the Rock Products Industry

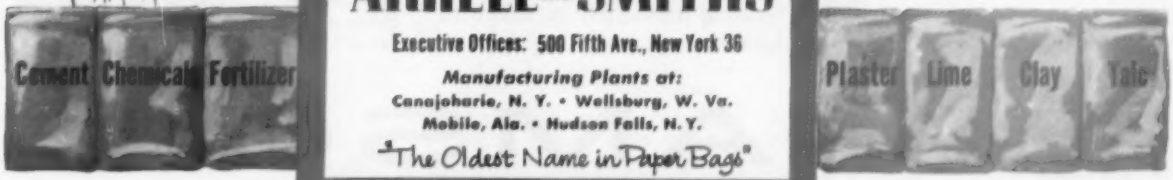
This revolutionary multi-wall is a real advancement in the science of bag closure. Unlike ordinary multi-wall pasted valve bags, the Arkell & Smiths "Step-Flex" Bag is triple-sealed top and bottom to eliminate sifting of fine materials. The plies forming the multi-wall construction are staggered on the ends, and each ply on one side of the bag is pasted to the corresponding ply that it overlaps on the opposite side of the bag ..... at both top and bottom.

This improved construction forms a positive sift-proof seal and actually makes the top and bottom of the bag even stronger than the walls!

Since the size of the orders for this new bag are increasing daily, we recommend that you let us know your requirements immediately! Write, wire or phone today.

A&S

P.S. There is no up-charge for the triple-sealed "Step-Flex" Bag.



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"The Oldest Name in Paper Bags"

FOR ADDITIONAL INFORMATION, WRITE TO ARKELL & SMITHS, PACKAGING DIVISION, CANAJOHARIE NEW YORK

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Amsco Alloy Ball and Rod Mill Liners

For longer mill life specify AMSCO®
BALL AND ROD MILL LINERS

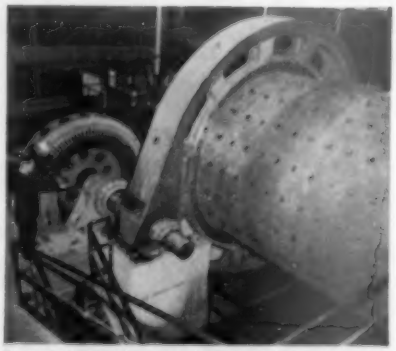
Processing iron ore, copper ore and cement mill clinkers gives a real workout to ball or rod mill parts

For top grinding efficiency, liners of numerous designs found in many leading makes of ball and rod mills are cast from special Amsco Alloy steels. These wear-tough steels are specially engineered to give the highest resistance to wear from abrasion and impact.

Amsco engineers and metallurgists have long co-operated with the manufacturers of ball and rod mill equipment to provide the right wear-resistant liner alloys and the advanced design features that will insure top mill performance.

If you have a problem with fast-wearing and costly mill liners, Amsco can recommend the right solution for you... in either special alloys or manganese steel.

Why not contact your ball or rod mill manufacturer's representative today and inquire about longer wearing Amsco Ball or Rod Mill Liners?



Standard Allis-Chalmers diaphragm ball mill equipped with Amsco Alloy Liners.

AMERICAN Brake Shoe COMPANY

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AMSCO

American Manganese Steel Division • Chicago Heights, Ill.

OTHER PLANTS IN: DENVER, LOS ANGELES, NEW CASTLE, DEL., OAKLAND, CAL., ST. LOUIS, JOLIETTE, QUEBEC

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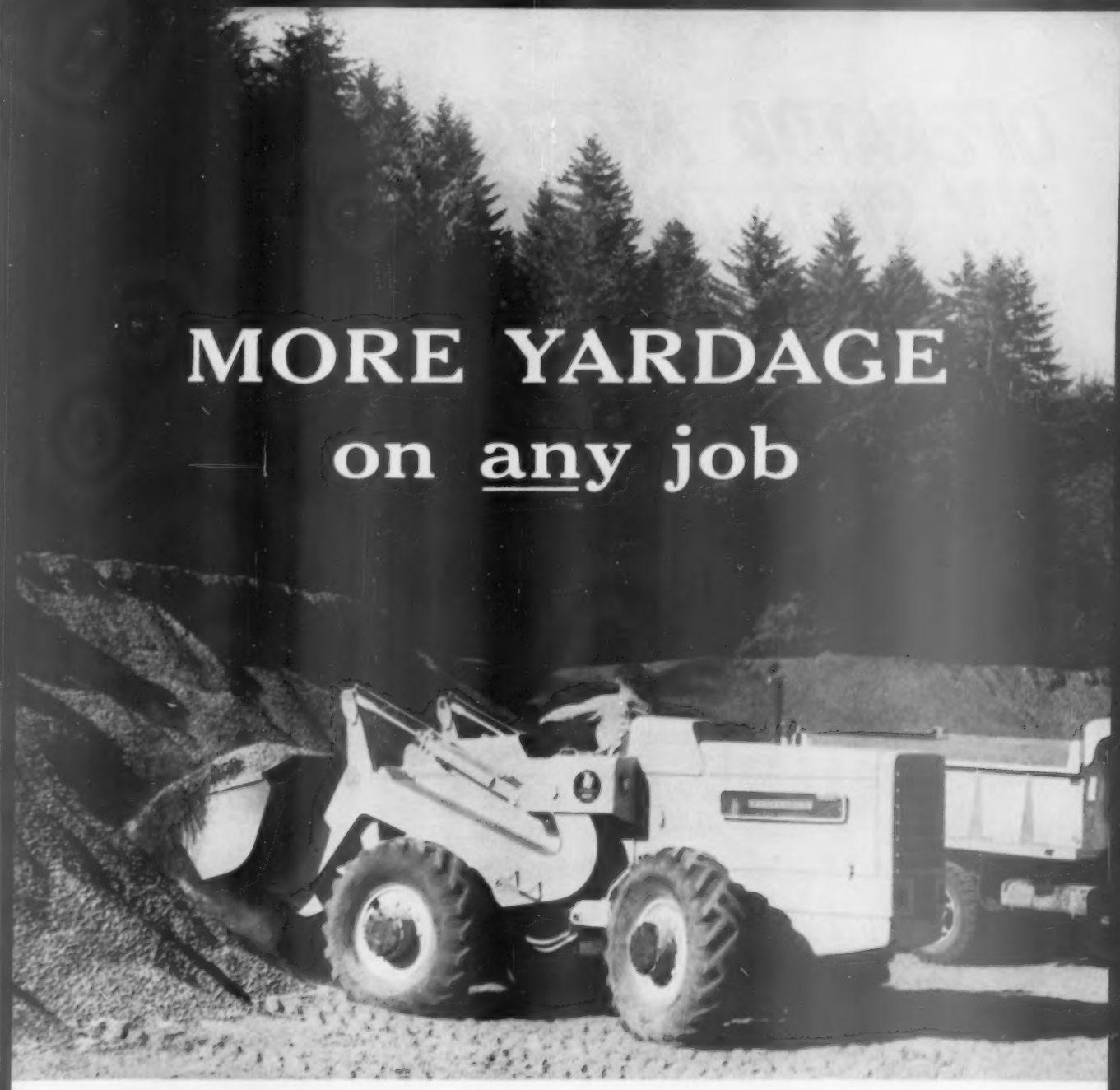

more yards per load . . . more loads per hour

DIG MORE Powerful pry-out action and 40° bucket tip-back at ground level get full bucket loads with less spillage loss. Power-transfer differentials provide sure-footed traction for digging power.

CARRY MORE Bucket carry position is close and low for maximum stability. Hydraulic system shock absorber cushions loaded bucket—smooths the ride—permits higher carrying speeds with less spillage.

DELIVER MORE Since you get MORE to begin with and keep MORE while traveling at higher speeds . . . with less spillage in both instances . . . the result—you deliver more yards per load and more loads per hour.

Now you have a choice of three sizes of 4-wheel-drive "PAYLOADER" tractor-shovels, each with *all* the more-productive features pioneered and proven by The Frank G. Hough Co.

They have power-transfer differentials—an exclusive "PAYLOADER" tractor-shovel feature that maintains effective traction on mud, gravel, ice and snow.

They have "no-stop" power-shift transmissions and torque converters . . . planetary final drives . . . power-steering and 4-wheel power brakes.

They have the exclusive bucket motion with 40° bucket tip-back at ground level and powerful pry-out action.

For proof of their superior performance and greater productive capacity on *your* job, ask your "PAYLOADER" distributor for a demonstration.

THE FRANK G. HOUGH CO. 3
705 Sunnyside Ave., Libertyville, Ill.

Send full data on 4-wheel-drive "PAYLOADER" tractor-shovels.

- ☐ model HO 2½ yd. payload; 1¾ yd. struck
- ☐ model HH 1¾ yd. payload; 1½ yd. struck
- ☐ model HU 1½ yd. payload; 1 yd. struck

NAME

TITLE

COMPANY

STREET

CITY

STATE

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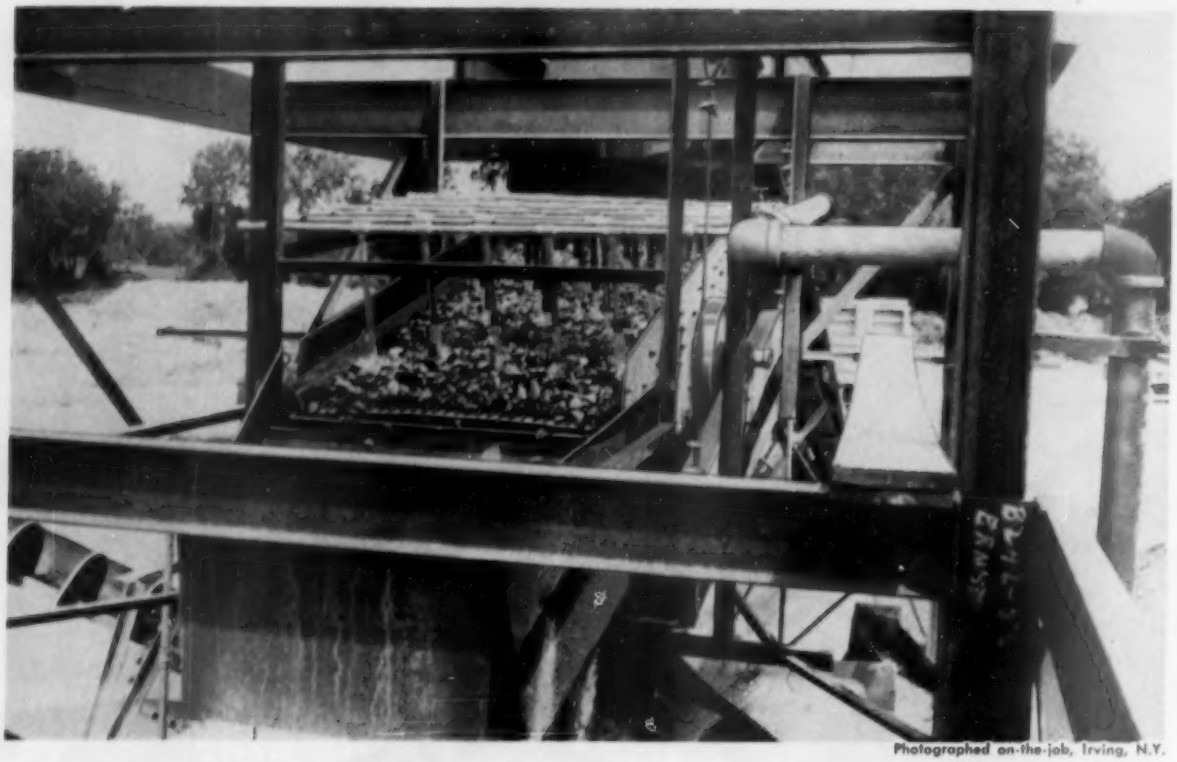
MANUFACTURED BY
THE FRANK G. HOUGH CO. LIBERTYVILLE, ILL.
SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY

OPERATOR MEETS SPECS. FOR N.Y. STATE THRUWAY WITH SECO



Photographed on-the-job, Irving, N.Y.

EVANS BUILDERS SUPPLY SAYS "BEST SCREENS WE EVER HAD"

Pictured above is one of the two SECO screens on-the-job at the high production sand and gravel plant of Evans Builders Supply Company at Irving, New York.

This rugged SECO double deck scalper in company with a 3 x 10 four deck SECO have produced approximately 280,000 tons of aggregates to date to meet the strict specs. of New York State Highway Dept. for use in construction of Thruway sections and sections of Routes 5 and 60. Not only have these SECO screens produced high tonnages, but equally important, they've done it with high accuracy and with no maintenance or down times for repairs. In the words of Mr. Samuel Catalino, owner of Evans Builders Supply, "SECO'S are the best screens we've ever used. They are 100% satisfactory in every way."

SEND FOR SECO CATALOG No. 204 TODAY

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SECO

TRUE CIRCULAR ACTION

VIBRATING SCREENS

NORTH, EAST, SOUTH AND WEST OPERATORS ACCLAIM SECO PERFORMANCE

Planning a new plant or modernizing your present facilities for greater production at lower cost per ton? Write, wire or phone SECO. Get the extra performance benefits that make SECO'S preferred coast-to-coast.

SCREEN EQUIPMENT CO., INC.
Buffalo 25, N.Y.

Manufacturers of Vibrating Screens Exclusively

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AGGREGATE LOADER—Barber-Greene Co. has issued Form 3547 on Model 544 and 550 loaders. The 544 is a snow loader which is convertible to Model 543 Aggregate Loader. The 550 is primarily a windrow loader which is adaptable to other uses.

Enter 500 on Reader Card

ANALYTICAL BALANCE—Arthur S. LaPine and Co. announces a data sheet for the "Reyers-Progress" analytical balance and knob-controlled fraction loader. The balance is said to be accurate to 1/100,000 of capacity. Three types, their capacities and sensitivities, are listed.

Enter 501 on Reader Card

BONDING AGENT—Standard Dry Wall Products, Inc., has prepared Circular 17, "The Thoro System," describing its products for surfacing, sealing and waterproofing floors, walls and ceilings, as well as for bonding new plaster to beams, columns, floors, ceiling slabs and all architectural concrete. Description of the products, directions for their use, and a specification guide are included.

Enter 502 on Reader Card

CONTROL—Fielden Instrument Division, Robertshaw-Fulton Controls Co., has brought out Bulletin F-403, "A New Approach to Industrial Instrumentation," describing the Fielden Tektolog Recorder-Controllers. The flexible instrument systems feature four basic components that can be interchanged to perform a variety of functions.

Enter 503 on Reader Card

CONTROL VALVES—Hanna Engineering works has brought out Bulletin 260 describing the new Flo-Line Control Valves, designed for 4-way air operation up to 250 p.s.i. Double solenoid, single solenoid and master valves are pictured.

Enter 504 on Reader Card

CONTROLLERS—The Bristol Co. has published Bulletin A130 describing the new Series 500W Pneumatic Controller. More than 75 photos and drawings illustrate the bulletin which describes the new wide control-band controllers for temperature, pressure, flow, vacuum, etc. Other sections describe control principles.

Enter 505 on Reader Card

CONVEYOR—A. B. Farquhar Division, The Oliver Corp. has released a bulletin on its Expand-O-Veyor. Model 439 is a 15-ft. long unit which expands to 25 ft. Model 439A expands from 26 to 43 ft. Specifications are given and diagrams explain their operation.

Enter 506 on Reader Card

CONVEYOR PULLEYS—R. & J. Dick Co., Inc., has published a price catalog, "Barry Conveyor Pulleys, CP-80". Specifications and prices are given on pulleys for original installation or replacement on package, production line, portable and general conveyor systems. The catalog covers Barry type "QD", "H" and "L" solid steel conveyor pulleys; lagged pulleys; and type "S" split steel pulleys.

Enter 507 on Reader Card

DIESELS—Detroit Diesel Engine Division, General Motors Corp., has prepared an illustrated brochure describing General Motors Turbopower Diesels. Specifications of industrial and marine models ranging from 159 to 300 brake hp. are described, along with design and performance data.

Enter 508 on Reader Card

DIRECT CURRENT APPARATUS—Direct Current Motor and Generator Dept., General Electric Co., has issued a booklet, "Why D-C?" The booklet, noting the need for increased industrial productivity, suggests avenues for exploration in the development of automatic systems, using d.c.'s controllability.

Enter 509 on Reader Card

DRILLS, BITS—LeRoi Division, Westinghouse Air Brake Co. announces the publication of two bulletins. Bulletin AT111B discusses the LeRoi-Cleveland line of construction tools —breakers, sinkers, clay spades, tampers, and wagon drills. Supplemental information on operation and maintenance is included. Bulletin RD29 describes LeRoi-Cleveland one-use drill bits, including construction, specifications, and preparation data.

Enter 510 on Reader Card

ELECTRICAL SWITCHES — Cole-Hersee Co. has brought out Truck, Trailer and Bus Catalog D-188, containing information on all types of switches, connectors, fuse and terminal blocks, pilot and dash lamps, bus and other warning flashers, low air pressure warning kits, voltage control units, protective and wiring devices and other electrical products designed for heavy-duty service. An application information section lists popular makes of trucks and busses, plus original part numbers.

Enter 511 on Reader Card

FILTER—Dorr-Oliver, Inc. announces Bulletin 7201 dealing with the Oliver horizontal rotary filter. Diagrams and photos describe the operation of the filter, and suggested applications are listed. Nine sizes are available, ranging in diameter from 3- to 19-ft.

Enter 512 on Reader Card

FLEXIBLE COUPLING — Ajax Flexible Coupling Co., Inc. has issued Catalog 62 covering Ajax Series D-100 Standard, Floating Shaft and Mill Motor type Dihedral Couplings. Complete information is given on sizes, capacities and dimensions of couplings designed to handle angular and offset misalignment.

Enter 513 on Reader Card

FLOTATION MACHINES — The Booth Co., Inc. has issued Bulletin 561 on Booth Flotation Machines, which explains operation and construction, and includes a diagram and dimensions chart.

Enter 514 on Reader Card

FORKLIFT TRUCKS — Towmotor Corp. has issued a folder on forklift trucks equipped with Towmotorque transmission. Operating advantages are enumerated and technical data is supplied.

Enter 515 on Reader Card

HOSE CLAMPS—Punch-Lok Co. has released Condensed Catalog F-279-R2 on hose clamps, locking tools, fittings, accessories and how-to-order information. Also described is the Clamp-Master Kit consisting of 45 assorted standard Punch-Lok clamps and a F-38 Loking Tool.

Enter 516 on Reader Card

KILN INSTRUMENTS—Leeds and Northrup Co. announces Folder N-0720 (1), "Modern Practices in Rotary Kiln Instrumentation," a 16-page folder showing how L&N instruments and controls are used in the manufacture of cement, lime and other non-metallic products. On-the-job pictures are used, and details of operation are discussed.

Enter 517 on Reader Card

LABORATORY BALL MILL—The Booth Co., Inc. has brought out Bulletin 566, describing the Booth Laboratory Ball Mill. On the reverse side of the leaflet is descriptive data on the Booth Pressure Sample Filter. Dimensional data on both devices are included.

Enter 518 on Reader Card

MAINTENANCE SERVICE — Towmotor Corp. has published Bulletin SP-18 which outlines the features of its preventive maintenance system, through which factory-trained mechanics perform on-the-job inspection and servicing of equipment.

Enter 519 on Reader Card

READER-SERVICE CARD

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READER-SERVICE CARD

TO HELP YOU OVERCOME TODAY'S PROBLEMS . . .
. . . AND TO PLAN EFFICIENTLY FOR TOMORROW

FREE INFORMATION

You can obtain catalogs and literature listed on these and other pages of the magazine by entering the number appearing either below or beside the item of interest on the READER-SERVICE CARD in this page.

MASONRY WATER REPELLENTS—Dow Corning Corp. has issued Brochure 8-301 discussing the benefits and advantages of silicone-based water repellent treatment for above-grade masonry. Examples of laboratory developmental work are featured, along with case-history reviews of field use. Application methods are given for brush and various types of sprays.

Enter 520 on Reader Card

MATERIALS HANDLING—Link-Belt Co. has issued Bulletin 2653. The illustrated booklet contains a directory of its standard products, engineered equipment, and manufacturing, sales and service facilities.

Enter 521 on Reader Card

MATERIALS HANDLING EQUIPMENT—Towmotor Corp. has brought out a standard specifications sheet for its complete line of Towmotor Forklift trucks,—gasoline-, LP-Gas- and diesel-powered models. In addition, the company has issued Bulletin SP-23, devoted to the "Pace-Maker" series of Towmotor forklift trucks. Data covering construction, application, and operation are included in the 3-color, 31-page booklet.

Enter 522 on Reader Card

METERS—Bailey Meter Co. has issued Bulletin G15-1 listing more than 100 measuring, transmitting, receiving, recording, and indicating instruments and control components for power and process applications. The 8-page bulletin includes detailed literature reference for each product as well as 24 instrument and control applications.

Enter 523 on Reader Card

MOTORS — Allis-Chalmers Manufacturing Co. has issued three new bulletins on its line of motors. Bulletin 51B6210G describes the Open Drip Proof Motors in N.E.M.A. rerated ratings of ½ to 40 hp. (Type G) and in non-rerated ratings of ½ to 100 hp. (Types AP and APWW). Bulletin 51B7225D describes the totally enclosed, fan cooled motors in N.E.M.A. rerated ratings of ½ to 30 hp. (Type GZ) and in non-rerated ratings of ½ to 100 hp. (Type APZ). Bulletin 51B7286G discusses explosion proof motors in N.E.M.A. rerated ratings of ½ to 30 hp. (Type GZZ) and in non-rerated ratings of ½ to 100 hp. (Type APZZ). All three bulletins contain cutaway views of the motors, tables of ratings and dimensions, as well as a horsepower frame chart.

Enter 524 on Reader Card

PAN FILTER—Dorr-Oliver Inc. announces Leaflet 8001, "Dorr-Oliver Traveling Pan Filter," describing the filter designed in Italy for handling strong phosphoric acid. The vacuum filter, of the horizontal endless belt type, consists of a series of individual filter pans mounted on the rubber belt. Vacuum is applied through slots in the belt, drawing filtrate into a collecting trough. A layout diagram is included.

Enter 525 on Reader Card

PORTABLE ROTARY DRILL—Uranium Enterprises has issued a leaflet describing the Porto-Diamond Drill, in 6- and 9-hp. sizes, constructed for use with water or air. The 6-hp. Model 630A can drill to 250-ft., and 9-hp. Model 999, to 375 ft. Weighing 44¼ and 51 lb., respectively, they are recommended for areas inaccessible to truck-mounted equipment.

Enter 526 on Reader Card

POWER UNIT — Transmission Division, Clark Equipment Co. has issued Bulletin TV-100 discussing its new "Transvarter" power train "package" consisting of torque converter, disconnect clutch and transmission. The unit is intended for off-highway and stop-and-go service. A cutaway diagram of the assembled unit, and specifications and dimensions are included.

Enter 527 on Reader Card

PULLEYS—Worthington Corp. announces Bulletin 1630-31 P describing its Variable Speed Motor Pulleys. Featured are motor pulleys (½ through ¾-hp.) available with adjustable and tilting motor bases, companion sheaves, motor bases and V-belts. Ratings, dimensions and selection data are given.

Enter 528 on Reader Card

REPOWERING — Caterpillar Tractor Co. has published Form DE635, "New Life for Old Machines." The booklet deals with machines powered by engines such as cranes or crushers, and suggests that repowering may give the producer the advantage of increased equipment availability.

Enter 529 on Reader Card

SPRAY VALVES—The Farval Corp. announces Bulletin 60-A, "Farval Spray Valves —A Forward Step in Centralized Lubrication." Information is provided on spray lubrication systems for open gearing and slide surfaces. Descriptions are given of manual and automatic systems and component equipment with schematic layouts as well as actual application views.

Enter 530 on Reader Card

STEEL PRODUCTS—The Colorado Fuel and Iron Corp. has released a 70-page catalog describing its principal products. Classifications include semi-finished and hot-rolled steel, heavy and special steel items, rails and accessories, wire and wire products, Wickwire rope, overhead conveying equipment, industrial screens and wire fabrics, hardware products, springs and formed wires, processing belts and various other products.

Enter 531 on Reader Card

TANDEM AXLE UNITS — Hendrickson Manufacturing Co. announces Bulletin 504 describing its RS Series Tandem Axle Units. Engineering features and condensed specifications are included in the illustrated brochure.

Enter 532 on Reader Card

TORQUE CONVERTER DRIVE—Allis-Chalmers Manufacturing Co. has issued Form MS-1140 on the torque-converter-drive HD21 (204 net engine hp.) and HD-16 (150 net engine hp.) crawler tractors. The operating principles of the drive are explained in the illustrated brochure.

Enter 533 on Reader Card

TRACTOR - SHOVELS — The Frank G. Hough Co. has issued Forms 307 and 311, covering Models HH and HU Payloader four-wheel drive tractor shovels, respectively. Model HH has a payload capacity of 1¼-cu. yd. and Model HU, 1½-cu. yd.

Enter 534 on Reader Card

TRAILERS—Anthony Co. announces a 6-page catalog describing its "Frameless" trailer units, containing complete feature details with hoist specifications and load ratings for single-axle and tandem-axle models.

Enter 535 on Reader Card

TWO-WAY RADIO—Radio Corporation of America, International Division, has published Form 3J2755 describing the advantages of equipping ready-mixed trucks with RCA 2-way radio. Five ready-mixed concrete firms using the equipment are featured in text and illustrations.

Enter 536 on Reader Card

USE THIS READER-SERVICE CARD for additional information on:

ADVERTISED PRODUCTS • LITERATURE • NEW PRODUCTS • CATALOGS

ROCK PRODUCTS
79 W. Monroe St.

NOVEMBER, 1956
Chicago 3, Illinois

Cannot be serviced after January 1, 1957 postmark.

READER-SERVICE CARD

RP-11-56

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Send information on items identified by key numbers beside or below items of interest to you. List your choice in numerical order. Limit 10 per card.

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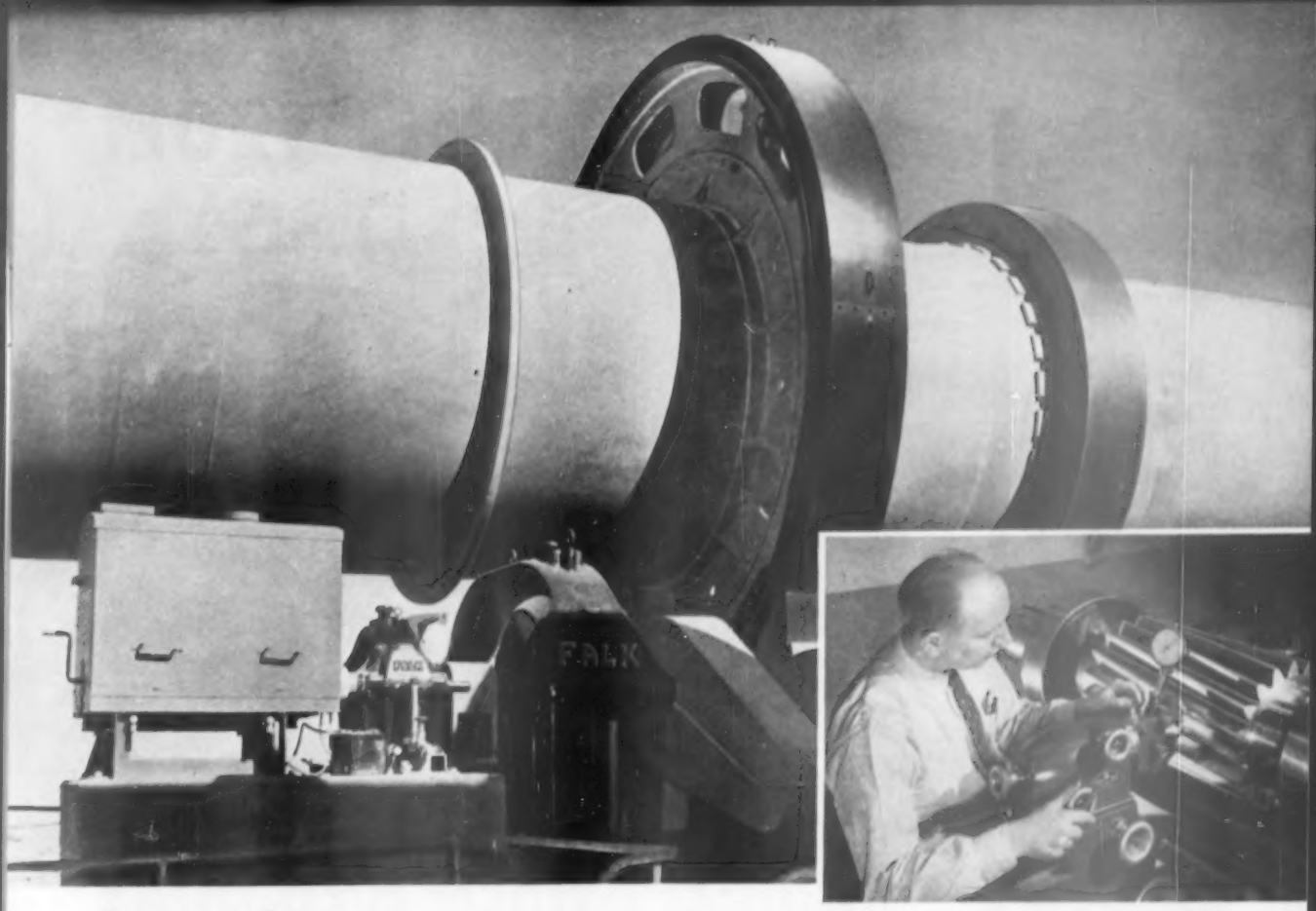


Quick Quiz on Gear Costs

—plus some money-saving answers!

Here are some questions and answers of major importance to mill and kiln operators and engineers who want to keep costs down:

Q. Are you losing production through "down time" caused by gear failures and frequent pinion replacements?

A. Falk Helical Gears and Pinions, correctly engineered, precision-hobbed and of highest efficiency, *keep operating* year-in-and-year-out.

Q. Do antiquated gears force you to use large, costly, slow-speed motors?

A. Falk Helical Gears provide a single-mesh, high reduction ratio drive which permits use of higher-speed motors resulting in savings in power bills and space.

Q. Is abrasion causing accelerated wear on your spur gears and shortening their life?

A. Falk Helical Gears are specially designed and precision-built to give maximum resistance against abrasive wear.

Q. Are gear teeth of outmoded design being taxed beyond their capacity?

A. In Falk Helical Gears, with full depth profiles, several teeth share the load at all times, assuring long service life.

Q. Is vibration, caused by inaccurate gearing, damaging associated equipment?

A. Falk Helical Gears operate so smoothly that vibration resulting from tooth contacts is eliminated.

When expanding or modernizing your mill or kiln facilities, you can effect substantial long-range savings by specifying "Helical Gears by Falk," the nation's pioneer and largest supplier of precision, helical gearing.

Consult any Falk Representative—also, write for
Engineering Report 6170, "Advantages of Helical Gearing"

THE FALK CORPORATION, 3001 W. CANAL ST., MILWAUKEE 1, WIS.

MANUFACTURING TECHNIQUES THAT BENEFIT GEAR USERS

The manufacture of Falk Helical Gears and Pinions involves many unique and interesting techniques in foundry, machine shop, laboratory, gear cutting and other departments—including inspection.

A typical example of the extreme thoroughness of Falk methods is shown in the small photograph above. In the Falk gear laboratory, the correctness of tooth spacing on a mill pinion is determined by measuring the normal base pitch. Readings are taken completely around the pinion. Tooth-to-tooth spacing is generally within limits of .0002", and total accumulated spacing error averages only about .0005". These values are a natural consequence of the inherent accuracy of the machines and procedures employed.

Such techniques as this assure the gear user that he is receiving the utmost in quality in every Falk product.

FALK

...a good name in industry

GG WIDE BASE

ROCK GRIP

RG WIDE BASE

ALL NON-SKID

SUPER MILEAGE LUG

RIB EXCAVATOR

GROUND GRIP

to help you beat the clock on the job!

TOUGHEST TIRES EVER BUILT

Today's fast schedules make breakdowns costly. That's why it pays to have the world's toughest tires on your rolling equipment.

Firestone has developed the strongest nylon tire ever made. The nylon cords are conditioned by Firestone's exclusive *Gum-Dipped* Safety-Tensioned process which controls tire stretch and tread-cracking. Firestone nylon plies resist impact breaks in the hardest going. They give you extra protection against flex breaks, heat failure and deterioration from moisture.

Firestone nylon tires beat breakdown losses on the job. And nylon-armored long life adds up to the lowest cost per-hour operation of any truck or construction tire. That's why it pays to use Firestone—and the cost records prove it!

SPECIFY GUM-DIPPED SAFETY-TENSIONED NYLON TIRES BY...

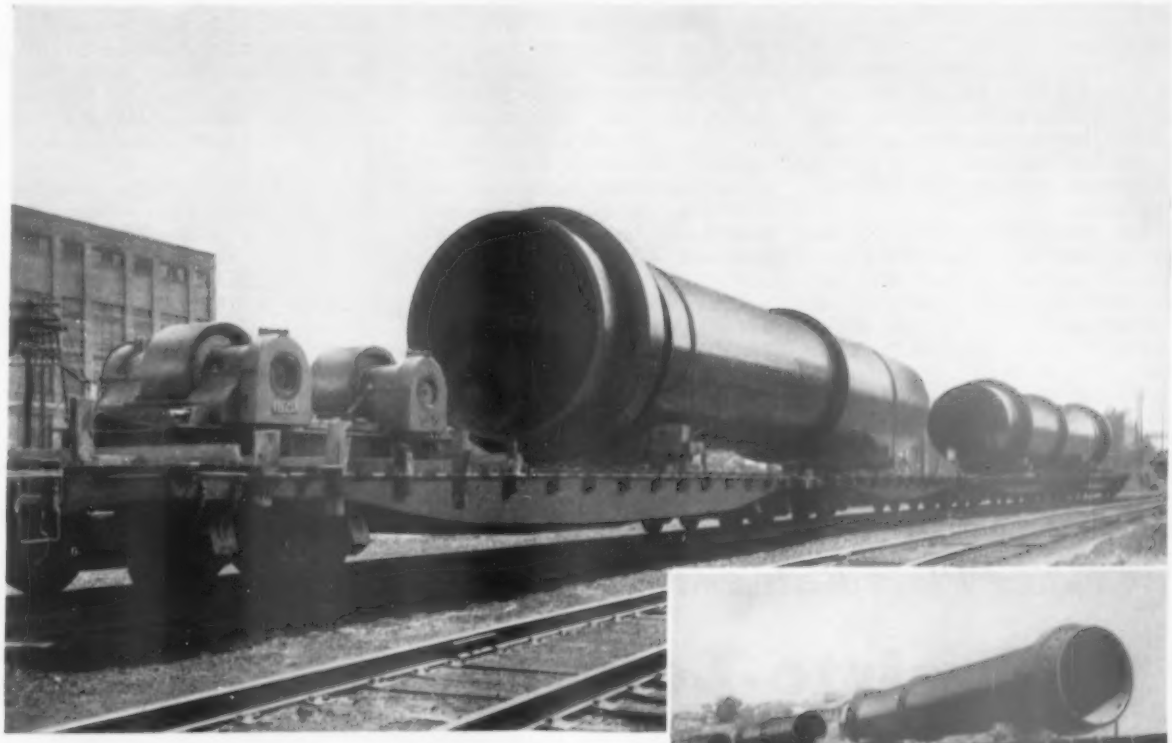
Firestone

Enjoy the Voice of Firestone on radio or television every Monday evening over ABC

Copyright 1956, The Firestone Tire and Rubber Co.

Enter 1079 on Reader Card

MORE LIME...CEMENT
On The Way With...
VULCAN ROTARY KILNS



Designed and completely built by VULCAN of Wilkes-Barre, the above sections are now assembled and in operation at the United Cement Co., Inc., Montevallo, Alabama. The kiln size is 9′ x 300′ including an 8′ x 80′ cooler. This latest VULCAN KILN, made with a heavy, all-welded steel shell, using 5 tires, is mounted on VULCAN's latest type supporting rollers, all of which are automatically lubricated and easily adjusted to compensate for wear or moderate misalignment. The whole unit is the most modern in design, including outstanding VULCAN features which places VULCAN among the leaders in this field.

Write today for Bulletin A-442 on Rotary Kilns, Coolers, Dryers, Retorts, and other dependable equipment. If you have a problem, VULCAN will gladly assist you.

Any information on items listed below will be sent to you immediately:

- Rotary Kilns, Coolers and Dryers
- Rotary Retorts, Calciners, Etc.
- Improved Vertical Lime Kilns
- Automatic Quick-Lime Hydrators
- Briquetting Equipment
- Heavy Duty Electric Hoists
- Self-Contained Electric Hoists
- Cast-Steel Sheaves and Gears
- Steel Plate Fabrications

VULCAN IRON WORKS

WILKES-BARRE, PA., U.S.A. CABLE ADDRESS "VULWORKS WILKESBARRE" ESTABLISHED 1849

Enter 1023 on Reader Card

MINING CONGRESS

(Continued from page 101)

year on recovery of cement dust and up to $240,000 a year on fuel, depending upon the type of fuel used.

In the combination process, the speaker said, a short rotary kiln is used for the final calcining and burning of the cement clinker. There is practically no degradation of the pellets in the rotary kiln, he continued, because the pellets are heat hardened in the sintering process and are able to stand up under the rotary kiln's mixing action.

Mr. Puerner said the combination of grate and rotary kiln can, with certain variations, apply to other minerals such as iron ore, phosphate, and magnesite and conversion of fly-ash to lightweight aggregate, with significant advantages.

The process, the speaker pointed out, reduced the dust hazards to a considerable degree. A plant using the process is now under construction in Milwaukee, Wis., in the heart of the industrial section. (See Rock Products, July, 1956, p. 82.)

Mr. Legg gave results of tests made on gravels processed by the HMS process which he summarized as follows: "Concrete consumers in the Michigan area have long recognized, and been greatly concerned by the distress of concrete caused by certain deleterious rock types when present in coarse aggregate. This distress follows alternate freezing and thawing of the concrete in the moist condition and seems to be accelerated in the presence of chloride salts used for ice removal.

"Five commercial heavy media plants have now been established in Michigan and are proving their ability to successfully remove these deleterious particles from the gravel. Although too early to properly assess the field performance of these heavy media improved gravels, laboratory studies have been made showing a substantial reduction in the deleterious content of the commercially produced gravel. Freeze-thaw studies of concrete containing the processed aggregate have likewise been made leading to a prediction of excellent field performance."

The mining of gilsonite, a natural asphaltic material, was described by Mr. Baker, wherein water jets did the actual mining. The debris was then flushed to a sump at the bottom of the mine's shaft where the heavier sand and rock fragments settled out. These were removed by a novel shaft mucking assembly. The gilsonite is pumped to the surface. Transportation of the crude material to the processing plant and the rail head involved a pipe line 72 miles long in this operation, the speaker said.

Mr. Hemmen described the oil shale surface workings of the Shell Oil Co., at their Rifle, Colo., pilot plant. The so-called oil shale resembles many of our limestones. The Bureau of Mines for many years has carried on work in this field with an experimental underground quarry and retort plant. The Shell operation is the first attempt by a company to work the shales for their oil content. The reserves of oil shale run into the hundreds of billions of tons and contain oil that could supply the nation for decades. The speaker showed slides and described the stripping, quarrying, crushing and screening operation, as well as the continuous retort used.

Mr. Wightman showed slides and described the Crestmore mine of the Riverside Cement Co. near Riverside, Calif. This operation was described in considerable detail in ROCK PRODUCTS, August, 1956, p. 108. The mine was inspected by many of the members and was a part of the scheduled field trips.

Crusher Plant Reduces Roll Maintenance Costs 65% with

Resisto-Loy

Users of RESISTO-LOY will tell you that at $2 a lb. it is cheaper to use than any electrode that sells at 50c a lb. Take a good look at the photograph.

This crushing plant was maintaining the rolls with a 50c rod, applying an average of 40 lbs. *every night* and 100 lbs. on weekends. In addition to this hard rod cost of $170 there was an average of 85 welding hours a week, or a combined total of $360 weekly.

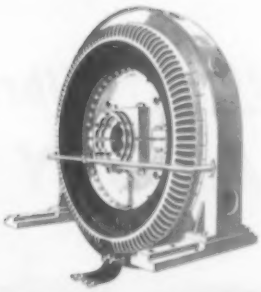
Now get the comparison. One complete coverage of rolls with RESISTO-LOY cost $310, including labor. Crushing MORE TONNAGE of the same rock, in the same plant, with the same crew, for eight crushing days during which not an additional pound of RESISTO-LOY was applied. Then on the 8th and 9th nights the welders applied 40 lbs. of RESISTO-LOY between the beads of the previous deposit for a total cost of $102. It was 12 days later before RESISTO-LOY was again applied. So for $412 this plant maintained full crushing production for 20 days. Had they been using the 50c "hard rod," their over-all cost for 20 days would have been three and one-third times $360 or at least $1200.

Our field man would like to call on you and give you detailed costs and experiences of other crushing plants.

THE RESISTO-LOY CO., INC. Manufacturers Grand Rapids 7, Michigan

Enter 1701 on Reader Card

Enter 1702 on Reader Card



HOW GENERAL ELECTRIC SYNCHRONOUS MOTORS REDUCE MAINTENANCE COSTS

AFTER WINDING OPERATION, NEW POLYEX COILS WILL BE VARNISHED TO SEAL OUT MOISTURE AND CORROSIVE OR ABRASIVE MATERIALS

New Polyex* coils increase motor life

Polyex insulated coils, a recent General Electric development, will greatly increase the life expectancy of large motors and substantially reduce maintenance requirements. Prior to being introduced into the manufacture of G-E motors, Polyex coils were subjected to numerous exacting tests to prove insulation characteristics. These tests showed that Polyex coils have many times the physical strength of conventional coils. Throughout the tests Polyex insulation retained its superior characteristics—even after being baked for thousands of hours at 125 C.

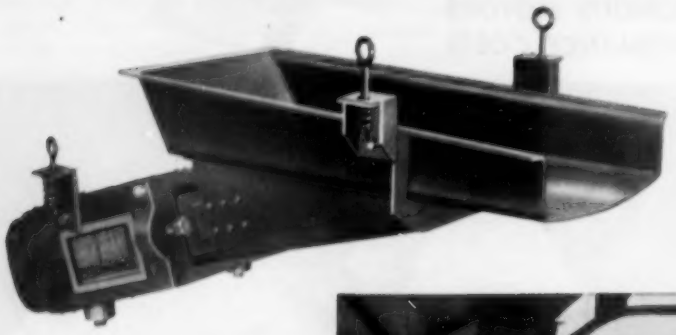
Twice the resistance of other coils to operating temperature changes, moisture, contamination and mechanical damage is possible because Polyex coils are insulated with polyester films and fibres which are treated with the newest hydrocarbon resins. This all-dielectric insulating system is possible because the latest technological developments of chemistry and engineering are combined with the practical skills of more than a half century of coil manufacture.

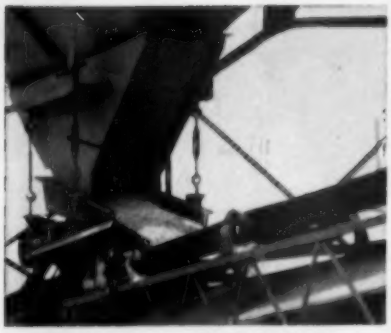
Polyex insulated coils are but the most recent development in General Electric's continuing efforts to provide a maximum in motor life and reduce motor maintenance to a minimum. For more information about General Electric motors, contact your Apparatus Sales Office. A sales engineer will be glad to explain the many other advantages of G-E low-speed synchronous motors. Write for Bulletin GEA-5332. Address Section 775-6, General Electric Company, Schenectady 5, New York.

*Reg. Trade-mark of General Electric Co.

GENERAL ELECTRIC

SYNTRON Vibra-Flow
VIBRATORY FEEDERS





Low Cost Production and Dependability

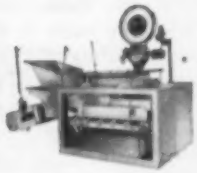
SYNTRON Electromagnetic Feeders provide an efficient, low cost method of handling bulk materials in pits, mines and quarries. Easy regulation of material flow — dry or damp, — coarse lumps or fine powders from a few pounds to hundreds of tons per hour — to crushers, ball mills, screens and washers. Available in flat pan or tubular trough models.

Other SYNTRON Equipment of proven dependable Quality

VIBRATING GRIZZLIES

SHAFT SEALS

WEIGH FEEDERS



Write for complete catalog Data—FREE

SYNTRON COMPANY
450 Lexington Ave. Homer City, Penna.

Enter 1054 on Reader Card

MANUFACTURERS NEWS

The Jeffrey Mfg. Co., Columbus, Ohio, has announced the following appointments: William K. Myers, district manager, New York office; Tom Fear, Jr., district manager, St. Louis office; William T. Davis, application engineer, San Francisco; William A. Lewis, sales engineer, Houston district office; Ralph Bolton, sales engineer, Birmingham district office; James A. Frazier, industrial sales division at Beckley, W. Va., district office; John Chrystal, manager, Columbus district office; A. T. Loew, manager of original equipment sales; and Dick Ross, office manager of merchandise sales division.

A. P. Green Fire Brick Co., Mexico, Mo., has acquired The Pyro Refractories Co., Oak Hill, Ohio; Durex Refractories Co., Jackson, Ohio; and Portsmouth Clay Refractories Co., South Webster, Ohio. A. C. Sanger and W. K. Stevens of the Valentine Fire Brick Co., Woodbridge, N. J., division of A. P. Green Co., will be in charge of operations and sales, respectively.

Blaw-Knox Co., Pittsburgh, Penn., has announced the appointment of A. H. Jackson as vice-president and general manager of the equipment division plant at Blawnox, Penn. He succeeds Capt. E. C. Rook, who has been named vice-president and general manager of the fabricated products group.

Food Machinery & Chemical Corp., Florida division, Lakeland, Fla., has announced the appointment of James E. Poythress as sales engineer for Form-Crete prestressed concrete forms in the northeastern section of the United States. He will make his headquarters in Alexandria, Va.

Symons Clamp & Mfg. Co., Chicago, Ill., has opened a new concrete forming equipment plant at San Leandro, Calif. Joseph Von Drasek has been named vice-president in charge of the plant. Assisting him in sales is Richard G. Allen. Robert P. Tross, transferred from Chicago headquarters, will act as chief engineer.

The Colorado Fuel & Iron Corp., New York, N. Y., has been named 1956 Blue Ribbon Equipment Award Winner by Mining World, international mining publication, for its development of Realock chain-link fabric to provide temporary mine rock support.

The Timken Roller Bearing Co., Canton, Ohio, has announced that A. R. Attebury, who recently retired as district manager for the steel and tube division, will become a sales consultant specializing in Timken pressure tubing.

Simplicity Engineering Co., Durand, Mich., announces the appointment of Ronald Jenkins as assistant advertising manager. Mr. Jenkins completed a two-year tour of duty in the United States Air Force before joining the company.

Joy Mfg. Co., Pittsburgh, Penn., has announced the promotion of William Hanson, Jr., from assistant manager to manager of conveyor products at the New Philadelphia plant. Before joining the company in 1951, Mr. Hanson served as a private engineer consultant.

Pioneer Engineering Works, Inc., Minneapolis, Minn., has appointed Fred W. Hartlage as sales promotion manager. He was formerly advertising and sales promotion manager with Baker-Lull Corp.

Euclid Division, General Motors Corp., Cleveland, Ohio, has appointed L. H. Brannian as district sales representative in North Dakota, South Dakota, and the province of Manitoba, Canada, with headquarters in Fargo, N. D.

General Electric Co., Detroit, Mich., has changed the name of the carboloy department to metallurgical products department.

(Continued on page 142)

in its own element...

THE OLIVER HORIZONTAL FILTER

dewatering silica sand

Dewatering high tonnages of high quality glass sand is a natural application for this Oliver Horizontal Filter recently installed at a west coast sand plant.

The pre-treated sand flows into the Filter, is dewatered, and then a slime removing reagent is introduced to aid in further reduction of moisture content. Vacuum is shut off at the end of cycle and the sand is discharged by means of a scroll into a hopper for conveyance to final drying. Operation is fully automatic with every step visible and accessible through the entire cycle.

An interesting side light of this installation is that clay tailings from the sand recovery operation are removed to a 275′ dia. Dorr Thickener for water reclamation. Clay fraction is pumped to a nearby processing plant for further refining.

This typical installation is but another example of Dorr-Oliver ability to provide the right equipment for the job.

If you would like more information on the Oliver Horizontal Filter, just drop a note to Dorr-Oliver Incorporated, Stamford, Conn. Ask for Bulletin No. 7201.

DORR-OLIVER
INCORPORATED
WORLD-WIDE RESEARCH • ENGINEERING • EQUIPMENT
STAMFORD • CONNECTICUT • U.S.A.

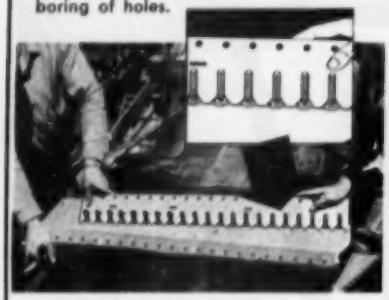
Enter 1080 on Reader Card

NEW FLEXCO POWER TOOLS

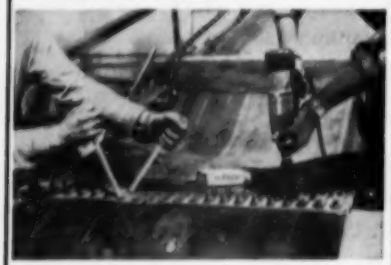
CUT APPLICATION TIME IN HALF

Your two man belt team can now join a belt 30" wide in 15 to 20 minutes . . . using the new FLEXCO Power Tools.

The FLEXCO Power Tool Boring Bit used with electric or air impact tool speeds boring of holes.



New FLEXCO Templet positions bolts for quick joining of belts. Reaching under belt has been eliminated.



Running down nuts is fast with the new FLEXCO Power Wrench used with electric or air impact tool. Two Bolt Breakers are used together to complete the joint.

If you are interested in speeding up fastener application, order the new Power Tools from your local FLEXCO Distributor. Write for Bulletin P-112-A.

FLEXIBLE STEEL LACING CO.

4684 Lexington Street • Chicago 44, Illinois

Enter 1055 on Reader Card

Hyster Co., Portland, Ore., has announced plans to open a new tractor equipment assembly plant near Glasgow, Scotland. Opening this fall, the Glasgow plant will supplement the Hyster operation in Nijmegen, The Netherlands. Announcement has also been made of the appointment of Jack P. Greer as district manager of the mid-central district, replacing Walt St. Clair who has been promoted to assistant sales manager of the eastern division. Mr. Greer's territory includes eastern Michigan, western Ohio, Kentucky, eastern and central Tennessee, and Indiana except the four northwestern counties.

American Hoist & Derrick Co., St. Paul, Minn., has announced the following promotions: J. J. Hite, director of engineering; William Niessen, chief structural engineer; Kenneth Potter, chief mechanical engineer; H. T. Bratt, assistant chief engineer in charge of revolver cranes, derricks and hoists; R. G. Lynn, assistant chief engineer in charge of all electrical application; A. W. Brown, assistant chief engineer in charge of excavators and truck cranes; Charles Milnar, mechanical engineer, locomotive cranes; and R. D. Adkins, mechanical engineer of the newly created Crosby-Laughlin division.

Atlas Powder Co., Wilmington, Del., has announced formation of a new sales development section in its explosives sales department. William T. Mahood, formerly manager of the department's contractors section, will head the new section. Also assigned to the new section are Joseph H. Dannenberg, sales promotion and advertising manager; John L. Romig, quarry and metal mining industry manager; John W. Cochran, seismograph industry manager; and John M. Jeffries, coal mining and stripping industry manager.

Nordberg Mfg. Co., Milwaukee, Wis., has announced the appointment of George D. Becker as special design consultant for the crusher division. He has been with the company for 33 years. Jacob S. Risley, Jr., has been named sales and service representative of the crusher division in the Pacific Northwest area, with headquarters at Milwaukie, Ore. William S. Presse' will represent the crusher division in the Province of Quebec, with headquarters at Montreal.

Thermoid Co., Trenton, N. J., has made the following appointments in the industrial rubber division: John A. Muller, director of research and development; J. Wilbur Huff, technical manager; Warren E. Hill, general manager; R. W. Chaffin, general sales manager; John W. Minnock, manager of the Los Angeles district; Oswald J. Sand, manager of the San Francisco district; and Roy L. Wanamaker, manager of the Denver-Salt Lake City district.

Richardson Scale Co., Clifton, N. J., has named Walter M. Young as director of sales. John Aquadro will replace Mr. Young as head of the electrical engineering department. Mr. Young has been with the firm since 1948. Mr. Aquadro was formerly project engineer in electrical engineering.

International Harvester Co., Chicago, Ill., has named Howard S. Manwaring, assistant director of engineering since 1953, as director of engineering, with special emphasis on motor truck and construction equipment engineering activities.

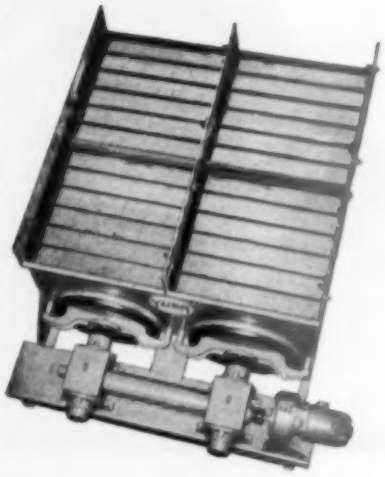
Dorr-Oliver, Inc., Stamford, Conn., has announced a $900,000 expansion program for the manufacturing plant at Hazleton, Penn. Enlarged facilities will enable the company to produce structural parts, previously sub-contracted to outside firms.

Baker-Raulang Co., Cleveland, Ohio, has opened a factory branch office in Chicago at 5627 S. Harlem Ave., with Jack Hiltibrand as manager.

(Continued on page 144)

YUBA JIGS

for black sands



Handle any material that can be concentrated, such as

CASSITERITE	RUTILE
GOLD	SCHEELITE
PLATINUM, ETC.	GARNETS
MONAZITE	SAPPHIRES
ZIRCONIUM	IRON
ILMENITE	COPPER

YUBA jig action is positive. Just set to desired speed and stroke, get constant uniform pulsations that create surface action over full area of jig bed. Result: YUBA M-8 jigs have large material capacity per flow line under full control.

Stroke adjustments between ¼" minimum and 3" maximum are easily and quickly made. Maximum frequency of a 4 cell M-8 jig is 350 at ¼".

YUBA jig design saves space, increases production in new or old dredges or mills. Use to supplement existing jigs or replace other concentration methods. For details of adapting YUBA jigs to your operation, send us data on ore, feed sizes and present installation.

76

YUBA DREDGES — PROVEN PERFORMANCE

YUBA MANUFACTURING CO.

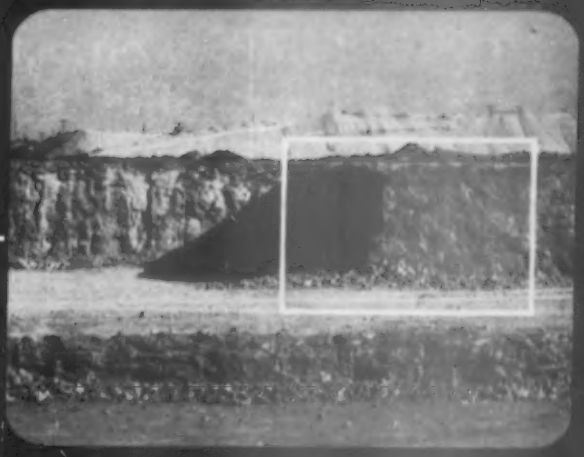
Room 650 • 351 California St. • San Francisco 4, Calif.

Enter 1056 on Reader Card

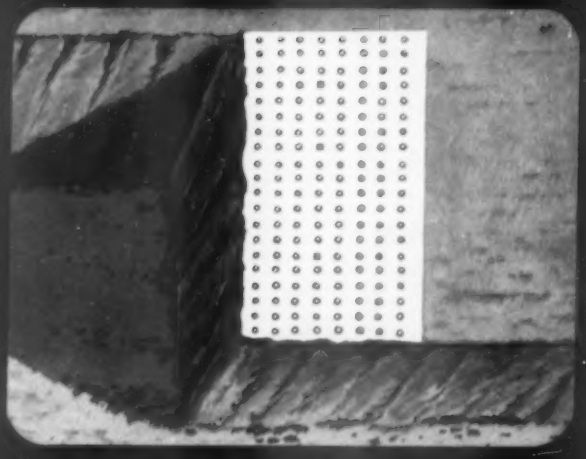
Enter 1128 on Reader Card

PROLONGED CONFINEMENT COUNTS

...in breakage and control



This is the area to be shot. A limestone quarry face 150 ft. wide . . . 34 ft. high. Burden: 60 ft. Wagon drill holes. Object: get good breakage and displacement . . . without sacrificing control.



Solution: shoot it the ROCKMASTER way, using alternate pattern. 160 holes. Approx. 50 lbs. of Atlas explosives per hole. ROCKMASTER millisecond delay caps at bottom of holes.

Blast shot heavy. Proper confinement of explosives energy pays off. Look at the terrific breakage! Well-controlled throw. Muck pile well displaced. And look at the straight, clean wall!

PROLONGED CONFINEMENT—the Rockmaster® way

Anchor Stone and Materials Co., Tulsa, Okla. was after exceptional breakage on this limestone quarry shot. Shooting it "heavy" the ROCKMASTER way gave better-than-expected results. The blast produced a well displaced, excellently broken muck pile which meant easy digging, maximum loads, and faster crushing . . . economies all along the line.

Prolonged confinement is what counts! The blast, initiated at the bottom of the holes with ROCKMASTER millisecond delay electric blasting caps, keeps confined to the burden. It's this right combination of the ROCKMASTER method and caps . . . plus Atlas explosives . . . that gives—

- **good control**
- **improved breakage**
- **greater efficiency**
- **better public relations**

To get the most out of your blasting methods and your explosives, discuss prolonged confinement with your Atlas representative. You can benefit by his ideas and experience. And get "Better Blasting"—Atlas' informative newsletter on latest methods and materials. Write us to put your name on our mailing list today.

EXPLOSIVES DIVISION
ATLAS POWDER COMPANY
WILMINGTON 99, DELAWARE
offices in principal cities

NAGLE PUMPS won out on this "pump-killing" job!

Since 1946 Nagle 4" type "T", frame 119 L horizontal shaft, centrifugal pumps have yielded high performance handling a highly abrasive and heavy mixture of asbestos and portland cement, at a plant of Flintkote Co.—just the kind of gruelling application for which NAGLE PUMPS are designed. Water-end parts are abrasion resistant, highly effective stuffing box is readily accessible and slippage seal easily adjusted. Split bearing stand can be quickly dismantled, but that's seldom necessary.

NAGLE PUMPS are establishing fine performance records in abusive applications where ordinary pumps fail, such as in chemical and petrochemical plants, atomic energy plants, mines, mills and quarries. **Send for Catalog 5206.**

NAGLE PUMPS

NAGLE PUMPS, INC.
1269 CENTER AVE., CHICAGO HEIGHTS, ILL.

PUMPS FOR ABRASIVE AND CORROSIVE APPLICATIONS

Enter 1069 on Reader Card

STEEL

Every Kind

Quick Delivery

Plates, Structurals, Bars, Sheets, Tubes, etc. Carbon, Alloy, Stainless Steels, Babbitt Metal.

RYERSON

Joseph T. Ryerson & Son, Inc. Plants at New York • Boston • Wallingford, Conn. Philadelphia • Charlotte, N.C. • Cincinnati Cleveland • Detroit • Pittsburgh • Buffalo Chicago • Milwaukee • St. Louis • Los Angeles • San Francisco • Spokane Seattle.

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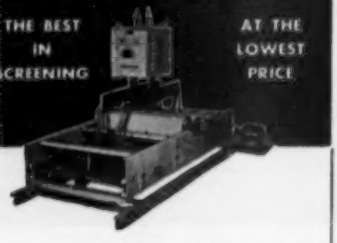
UNIVERSAL

THE BEST IN SCREENING — AT THE LOWEST PRICE



THE MOST MODERN AND EFFICIENT ELECTRIC HEATING EQUIPMENT AT A REASONABLE PRICE

- VIBRATING SCREENS- *All sizes and types*
- UNILEC HEATING EQUIPMENT
- UNIFLEX VIBRATORS
- UNIVIBE RIDDLES

WRITE FOR CATALOG NO. 150

UNIVERSAL VIBRATING SCREEN CO.
Racine, Wisconsin
Quality Screens Since 1919

Enter 1053 on Reader Card

Ackerman-Johnson Co., Chicago, Ill., and New York, N. Y., has named as its new president Ralph Robinson, who recently purchased a controlling interest in the company. Ackerman-Johnson, manufacturers of screw anchors, expansion bolts and toggle bolts, will continue its operations in Chicago as a subsidiary of the Milwaukee Stamping Co. William A. Stone, company manager for the past 40 years, continues as vice-president and general manager.

Minnesota Mining & Manufacturing Co., St. Paul, Minn., has announced the appointment of Maynard H. Patterson as vice-president and general manager of the international division. He was formerly vice-president and general manager of Minnesota Mining & Mfg. of Canada Ltd., London, Ontario, and will be succeeded by Kenneth J. Shea, who has been vice-president and general sales manager of the international division since 1954.

The Cleveland Worm & Gear Co. and its affiliate, The Farval Corp., Cleveland, Ohio, have appointed Henry H. Platek as advertising manager. He has served as assistant sales supervisor and assistant advertising manager since 1945.

Koehring Co., Milwaukee, Wis., and Crutcher-Rolfs-Cummings, Inc., Houston, Texas, have announced a merger of their activities dealing with the manufacture and sale of machinery used by cross country pipeline constructors.

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946. (Title 39, United States Code, Section 233) SHOWING THE OWNERSHIP, MANAGEMENT, AND CIRCULATION OF ROCK PRODUCTS, published monthly at Chicago, Ill., for October 1, 1956.

1. The names and addresses of the publisher, editor, managing editor, and business managers are:
Publisher — Maclean-Hunter Publishing Corp., 79 W. Monroe St., Chicago 3, Ill.
Editor—George C. Lindsay, 79 W. Monroe St., Chicago 3, Ill.
Managing Editor—Ralph S. Torgerson.
Business Manager—P. D. Allen, 79 W. Monroe St., Chicago 3, Ill.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member, must be given.)
Maclean-Hunter Publishing Corp., 79 W. Monroe St., Chicago 3, Ill. The stockholders of the Maclean-Hunter Publishing Corp. are P. D. Allen, 255 Locust Rd., Winnetka, Ill.; Joseph J. O'Neill, 14 Lincoln Court, Lombard, Ill.; F. S. Chalmers, 86 Chestnut Park, Toronto, Ont., Canada; Horace T. Hunter, 120 Inglewood Drive, Toronto, Ont., Canada; Maclean-Hunter Publishing Co., Ltd., 481 University Ave., Toronto, Ont., Canada.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.)
None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which the stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

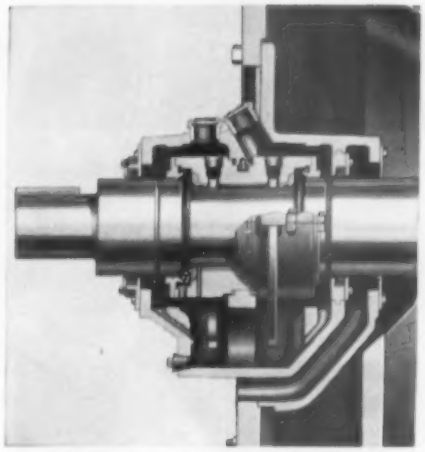
5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required from daily, weekly, semiweekly, and triweekly newspapers only.) . . .

P. D. Allen
Business Manager

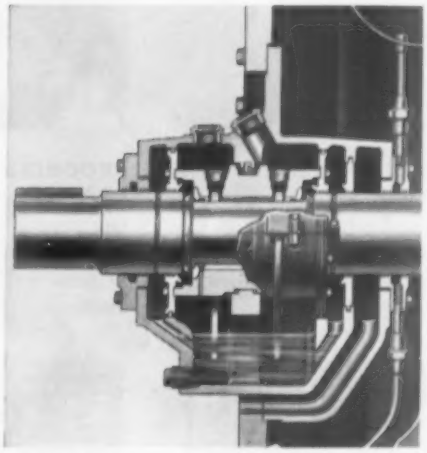
Sworn to and subscribed before me this 20th day of September, 1956
[SEAL]
Clara M. Brockschmidt
(My commission expires March 16, 1957.)

NEW Bearing Design Means Better Motor Performance

Allis-Chalmers capsule-type sleeve bearings now perfected for complete motor line



Standard capsule-type sleeve bearing

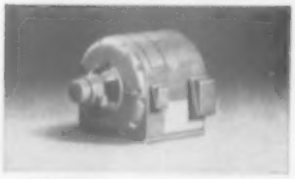


High speed capsule-type sleeve bearing

A new feature—an improved capsule-type bearing design—has been added to the Allis-Chalmers complete line of large end-shield bearing motors. This new bearing will give you better motor service, simplified maintenance and longer motor life through features like:

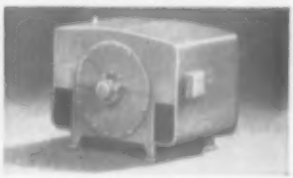
- Dust-tight, leakproof enclosure protects bearing from dirt, dust or abrasive materials.
- Venting system prevents oil leakage — keeps oil and vapor from getting into motor enclosure.
- Dual oil-rings insure bearing surface lubrication — either ring can adequately lubricate bearing.
- Split end-shield gives easy accessibility to winding and air gap — without disturbing capsule or bearing alignment.

Drip-proof or splash-proof cage motor



Synchronous or wound-rotor motor

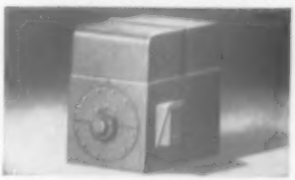
High speed cage motor



Weather-protected motor

Totally-enclosed fan-cooled motor

Totally-enclosed forced-ventilated motor



Water-cooled or inert-gas-filled motor

Capsule-type bearings are standard on these Allis-Chalmers motors.

You get MORE from Allis-Chalmers motors

More design and construction features — more application help. For complete information, contact your nearby A-C office or write Allis-Chalmers, Power Equipment Division, Milwaukee 1, Wisconsin.

GIVE BETTER ELECTRICALLY

ALLIS-CHALMERS

A-C ALLIS-CHALMERS

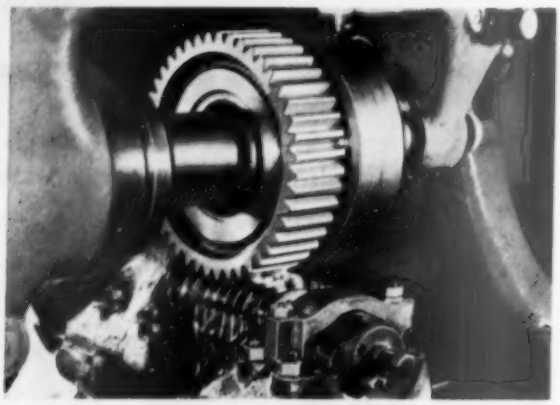
A-5032

Enter 1043 on Reader Card

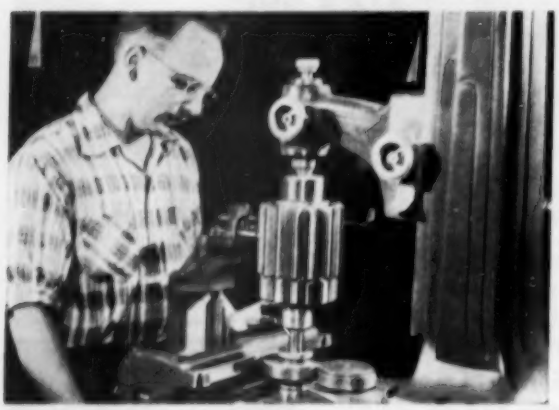
Your Allis-Chalmers equipment deserves *True Original Parts*

Why? Because they meet design, manufacturing, inspection and packaging standards that assure long life . . . budget-stretching low-cost operation.

DESIGNED WITH THE ORIGINAL EQUIPMENT. Each Allis-Chalmers True Original Part benefits from a fine metallurgical research program. Each is designed by experienced engineers to do its full share of the work . . . just as each component in your Allis-Chalmers machines did when this equipment was new.



PRODUCED ON MODERN MACHINES BY SKILLED CRAFTSMEN. Here's where modern manufacturing equipment and know-how combine to produce precision parts. This combination is the reason you can be sure of getting full work power from any Allis-Chalmers equipment in which True Original Parts are used.



CAREFULLY INSPECTED FOR PRECISION FIT. Every Allis-Chalmers part goes through rigid original-equipment inspection processes and testing routines. Gears are checked many times — for perfect meshing, true balance, full capacity.

PROPERLY PACKAGED FOR LASTING PROTECTION. Many are specially treated to protect against rust and dust. Others are safety-packed to guard against nicks, scratches or handling damage.

True Original Parts are available at your Allis-Chalmers Construction Machinery dealer — where factory-trained servicemen are on hand to help you at all times.

ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

ALLIS-CHALMERS

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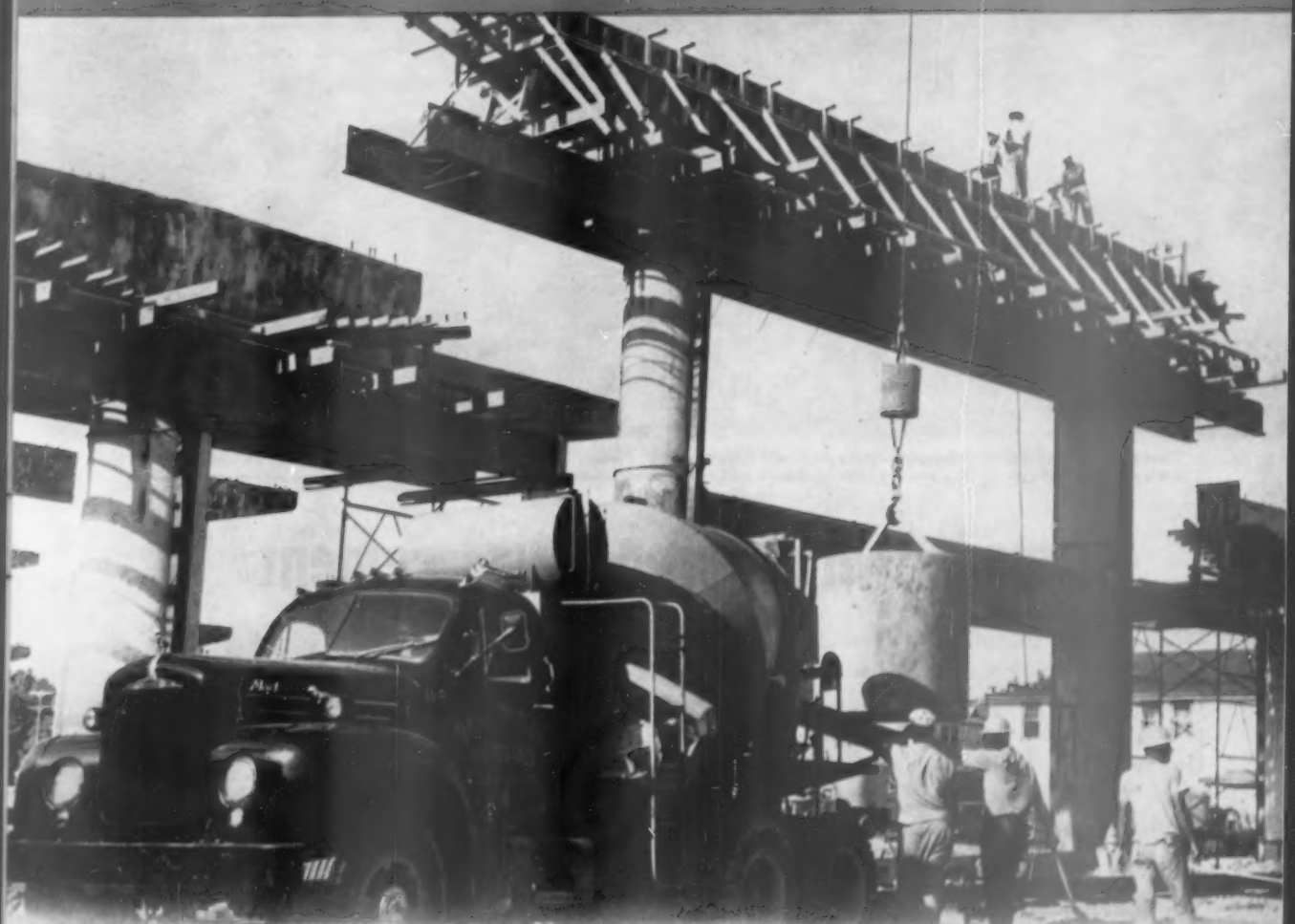
CONCRETE PRODUCTS

A SECTION OF ROCK PRODUCTS

CONCRETE UNITS · READY-MIXED CONCRETE



Mixer truck of Bert Weaver Materials, Inc., New Orleans, La., supplying concrete to bridge project

Better blocks . . .

Clean attractive appearance of Duraplastic-made products is evident at Jewell Concrete Products Plant, Waco, Texas. **Ranch Stone** units in foreground are a specialty of this plant. Their pleasing color tones are featured in many attractive southwestern homes for both interior and exterior masonry walls.

made with Duraplastic* cement

When concrete manufacturers consider the advantages of producing a more uniform, more *salable* block, the cement they choose is usually Atlas Duraplastic. That's because experience proves that Atlas Duraplastic makes better-looking products with clean, true edges, better face texture and improved weather resistance. Naturally, such blocks are easier to sell and make better masonry.

YET DURAPLASTIC COSTS NO MORE than regular cement—requires no unusual changes in procedure.

Complies with ASTM and Federal Specifications. For descriptive booklet, write:

UNIVERSAL ATLAS CEMENT COMPANY

UNITED STATES STEEL (USS) CORPORATION SUBSIDIARY

100 PARK AVENUE, NEW YORK 17, N. Y.

*"DURAPLASTIC" is the registered trade-mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.

AIR-ENTRAINING PORTLAND

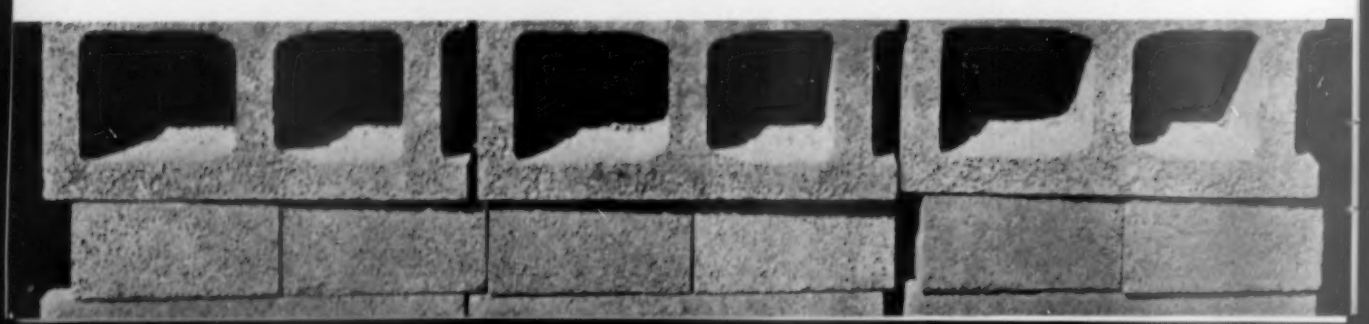
D-180

Atlas® Duraplastic Cement

MAKES BETTER CONCRETE PRODUCTS AT NO EXTRA COST

OFFICES: *Albany · Birmingham · Boston · Chicago · Dayton · Kansas City · Milwaukee · Minneapolis · New York · Philadelphia · Pittsburgh · St. Louis · Waco*

UNITED STATES STEEL HOUR—Televised alternate Wednesdays—See your newspaper for time and station.



INDUSTRY NEWS

Cover Picture

ON THIS MONTH'S CONCRETE PRODUCTS COVER is shown a ready-mixed concrete truck of Bert Weaver Materials, Inc., New Orleans, La., supplying concrete to a highway bridge project. The concrete is being handled from the mixer truck to the forms by a tremie bucket. This company has set up a cost-control system which should be of interest to every ready-mixed concrete company.

Canadian Pipe Firm Expands

PRESSURE PIPE CO. OF CANADA LTD., Montreal, Que., Can., subsidiary of Canada Iron Foundries, Ltd., is proceeding with the construction of a $2 million plant in Toronto for the production of concrete water pressure pipe. The plant, containing 100,000 sq. ft. of space, will be located on a 20-acre site.

Products will include steel cylinder, reinforced concrete pressure pipe in the cage and cylinder type, the prestressed cylinder type and the wound cylinder type, as well as non-cylinder reinforced concrete pressure pipe for low-head installations. The plant will be equipped to make this pipe in sizes from 12- to 54-in. internal dia., and in 16-ft. lengths. Production will average 1000 ft. of pipe per day when the plant goes into operation in the spring of 1957.

New Flexicore Plant

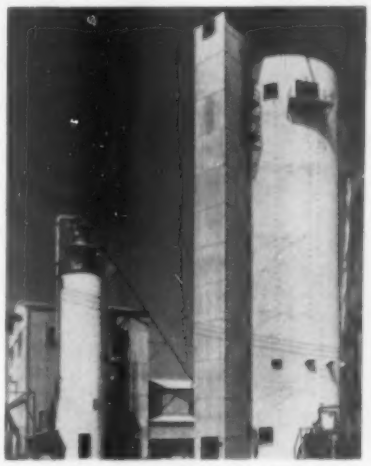
LAKE ERIE FLEXICORE, INC., a newly organized firm with temporary headquarters in Columbus, Ohio, has announced plans for construction of a $300,000 plant for the manufacture of precast, hollow reinforced concrete slabs for roof and floor construction near Kent, Ohio.

The plant and office buildings, occupying 20,000 sq. ft. of space, will be constructed of flexicore slabs, a product developed in 1938 by Price Brothers Co. In full production, 2,000,000 sq. ft. of the slabs will be turned out yearly.

Officers of Lake Erie Flexicore, Inc., are C. E. Haines, Columbus, president; John S. Kaufman, Columbus, vice-president; Robert E. Haines, Columbus, secretary-treasurer; and Gayle B. Price, Dayton, director.

Tower of Precast Staves

THE MARIETTA CONCRETE CORP., Marietta, Ohio, and Vulcan Engineering Division of Vulcan-Cincinnati, Inc., Cincinnati, Ohio, have built a precast concrete stave tower for the urea plant of the new Petro-Chemical Division of Standard Oil Co. of Ohio at Lima, Ohio. The tower is said to be the first of its type to be built using precast concrete staves reinforced with steel hoops.



Precast concrete stave tower (right foreground) built by The Marietta Concrete Corp., for Standard Oil of Ohio.

The Marietta Concrete Corp. also constructed a storage bin for the material used to coat the fertilizer prills. Marietta reinforced insulated precast concrete wall panels were used in construction of the bagging building, and the entire bag storage building was erected by Marietta.

A feature of the tower was the great height for stave construction, requiring a stave which could resist lateral buckling from high winds during the early stages of construction. F. L. Christy, president of Marietta Concrete, recommended a 6-in. Air-Cell stave acceptable to stress experts.

Precast "Mural" Concrete

NATION-WIDE BUILDERS, INC., Des Moines, Iowa, is manufacturing Mural Stone, precast concrete units with a long, narrow Roman-type design. The units carry a 20-year guarantee against deterioration from thawing, freezing, cracking or fading, and are said to provide insulation against both hot and cold weather. George Van Patten is president of the concrete company.

Adds Fourth Autoclave

BUEHNER BLOCK CO., Salt Lake City, Utah, has installed a new autoclave, the fourth unit in the plant. The autoclave was built to Buehner specifications by the Salt Lake branch of the Chicago Bridge and Iron Co.

ARUNDEL-BROOKS CONCRETE CORP., Baltimore, Md., has erected an additional branch plant for production of ready-mixed concrete at Sparrows Point. Annual capacity will be 150,000 cu. yd. Four other plants of the same capacity are operated by the company, of which C. Warren Black is president.

PENNSYLVANIA PRESTRESS, INC., York, Penn., has been organized for the manufacture of bridge beams and roof slabs. F. C. Wagman is president; John Zimmerman, vice-president; Bernard Frick, secretary; and Edward B. Wagman, treasurer.

ROCKET READY-MIX CO., Grand Junction, Colo., is occupying a new $75,000 plant on the Gunnison River. The firm has also opened a subsidiary, Gunnison River Sand and Gravel Co. A. S. Mittry and K. S. Mittry are partners.

MIDDLETOWN BRIKCRETE CO., Middletown, Ohio, has been formed. Officers are Oliver B. Seitter, president; William T. Pratt, vice-president; and Mrs. Ruth Seitter, secretary. John W. McGuire is plant manager.

CONCRETE AND WOOD PRODUCTS CO., Haines City, Fla., has been sold by George Grono to Atward J. Aldridge and Glenn T. Johnson. They will continue to manufacture Brikcrete block.

NEWARK CONCRETE READY-MIX CO., Newark, Ohio, has begun operations. The firm was formerly Licking Ready-Mix Co., and was purchased by Paul Kent and T. Dye Barnhouse.

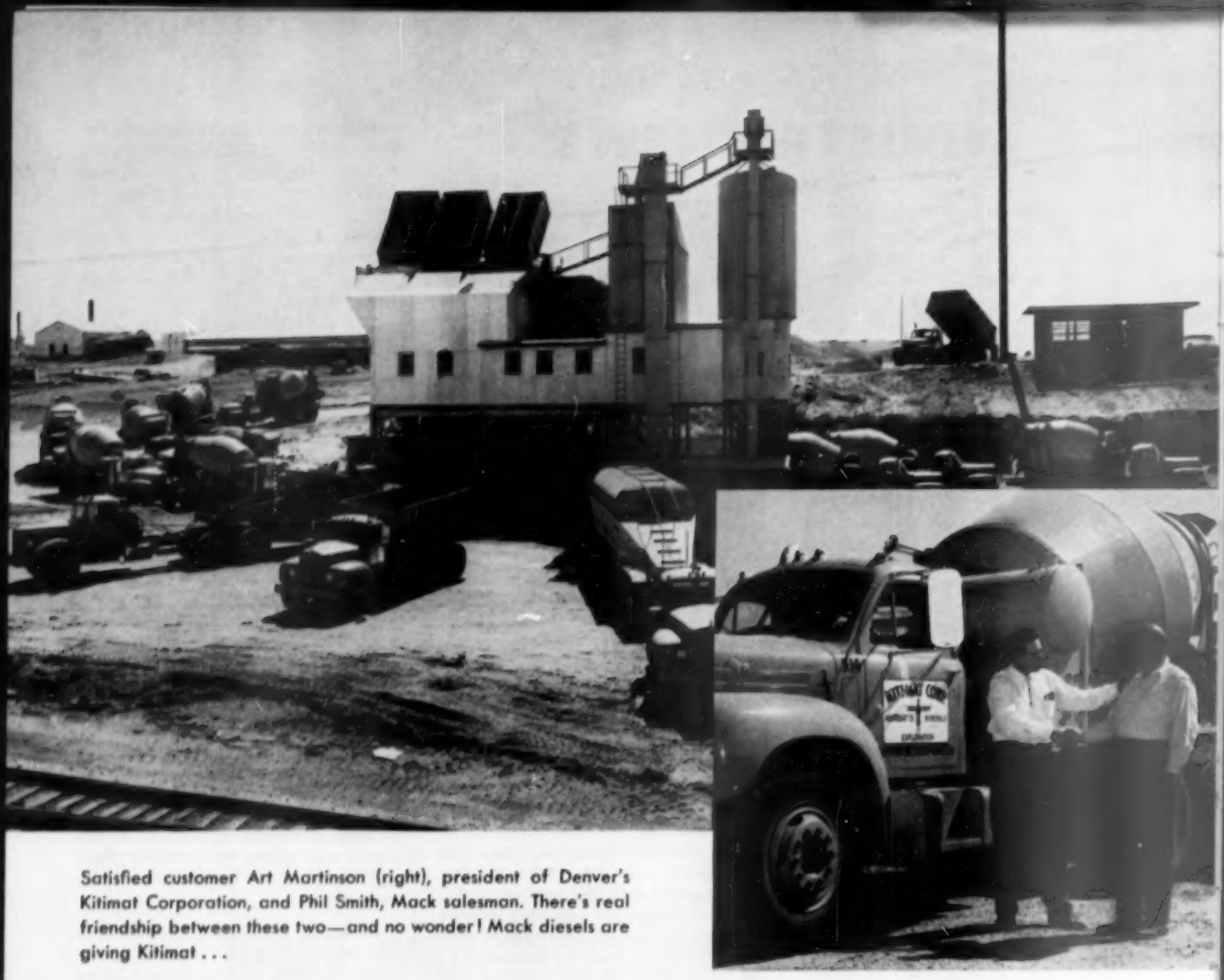
MIAMI VALLEY CONCRETE PRODUCTS, Troy, Ohio, a branch of Greenville Concrete Products, Greenville, Ohio, has gone into production. Harold Snider is president.

THE HIGHLAND LAKES READY MIX CO., Burnet, Tex., began operations recently, under the management of J. T. Sites.

THE MAHONING VALLEY SAND CO., West Pittsburgh, Penn., has constructed a $250,000 sand processing plant near Willow Grove. Production capacity has been set at 250-300 t.p.h., double that of the former plant.

RAINS AND SON, Forrest City, Ark., has opened a ready-mixed concrete plant. Owner of the firm is A. E. Rains of West Memphis, Ark.

JACKSON STONE CO., Jackson, Miss., has opened a concrete block plant on a 20-acre site, doubling its former storage and curing capacity. The plant can now produce 1,500,000 block per year.



Satisfied customer Art Martinson (right), president of Denver's Kitimat Corporation, and Phil Smith, Mack salesman. There's real friendship between these two—and no wonder! Mack diesels are giving Kitimat . . .

100% more fuel mileage

The Martinson Construction Company of Denver, Colorado, leases a fleet of trucks from the Kitimat Corporation. Originally, the trucks were gasoline-powered units averaging 3½ to 4 miles per gallon—real "profit killers." Today, Kitimat operates Mack diesels exclusively and averages 8 miles per gallon—for a saving in fuel costs of more than 100%.

As Kitimat president Art Martinson says, "In 1952 we bought our first Mack diesel and got a real lesson in truck economy and performance. Today, we are 100% Mack—12 mixers, 6 dumpers, and 2 tractors. The fuel savings alone more than justify the higher initial cost of the Macks. Just as important, our Macks give us dependable service, bonus capacities, and lower maintenance costs with a really gratifying minimum of down time."

Why not cut hauling costs and boost your profits with Macks—trucks that are unmatched for operating economy, stamina, and low maintenance? Like other operators, you'll find that you can't afford *not* to operate Macks. For complete information, contact your local Mack Branch or Distributor. Mack Trucks, Inc., Plainfield, New Jersey. In Canada: Mack Trucks of Canada, Ltd.

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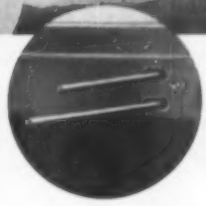

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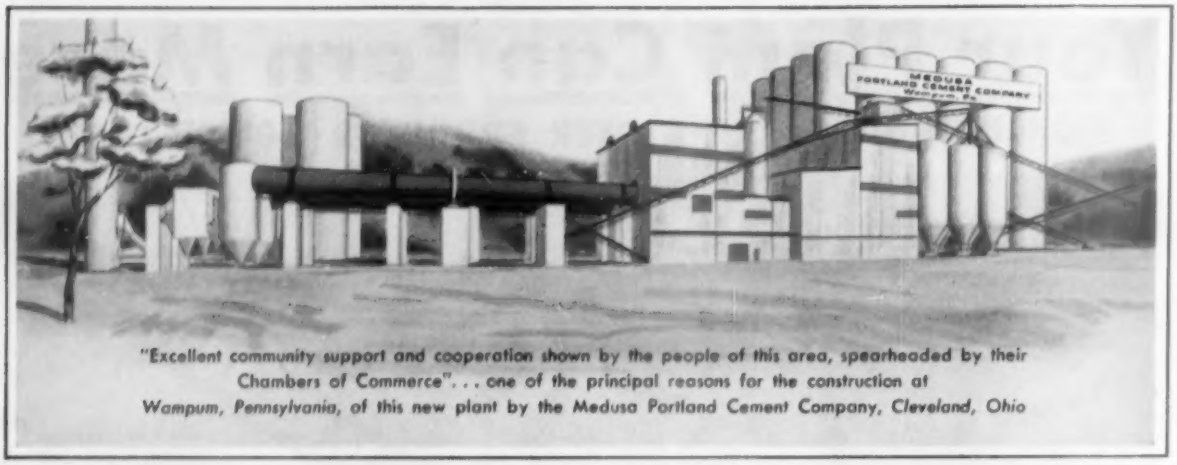

"Excellent community support and cooperation shown by the people of this area, spearheaded by their Chambers of Commerce"... one of the principal reasons for the construction at *Wampum, Pennsylvania*, of this new plant by the Medusa Portland Cement Company, *Cleveland, Ohio*

THERE MUST BE A REASON...

Medusa Portland Cement Company Planted a New $12,000,000 Plant

IN PENNSYLVANIA

Ellery Sedgwick, Jr., President of Medusa Portland Cement Company, tells why a *Pennsylvania* location was chosen for their largest single plant investment in the company's 64-year old history. Here, *in Mr. Sedgwick's own words*, are the principal reasons:

1. "An abundant supply of . . . our principal raw material. It is becoming increasingly difficult, in this country, to locate suitable limestone in proximity to large cement consuming markets.
2. "Extensive deposits of coal immediately adjacent . . . we estimate that it will cost us about 50% less than coal supplied to our other plants.
3. "Excellent community support and cooperation.
4. "Abundant water supply and availability of power at relatively low rates.
5. "A rapidly rising rate of construction activity and population increase within a 100-mile radius . . . our natural market."

Your company can also benefit from these . . . and the many, many more advantages that Pennsylvania offers. A special survey, *prepared in confidence to your individual requirements*, can tell you more about how Pennsylvania fits in with your new plant plans.

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Labor—Availability, skills, rates, surplus areas.

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Building—Availability, sizes, location, descriptions.

Sites—Acreage, topography, utility services, photos, maps; industrial districts.

Materials—Metals, industrial chemicals, wood, textiles, farm products.

Minerals—Location, reserves, potentials, analyses.

Water—Quantitative, qualitative analyses.

Power—Capacity, network, industrial service, costs.

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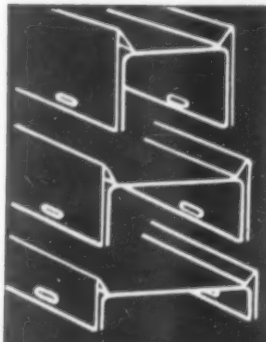
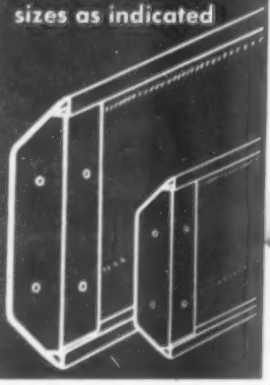
PROFITABLY produce 30 different sizes of standard pre-stressed concrete I-Beams . . .



Interchangeable pilot liners and material displacement inserts are fabricated for each Class to produce all product sizes as indicated



Side forms, inserts and pilot liners in all four classes are fabricated in 10-foot lengths for most efficient casting operations. Specially designed tie bar assemblies (adjustable to two or three casting positions for required widths) hold top of forms firmly in place for accurate casting. Bottoms of forms and pilot liners are locked in position by specially designed Panel lock bars and wedges to provide uniformly smooth pre-stressed I-beams that will meet the most rigid specifications. Prefabricated pre-stressed concrete construction is sweeping the country because of lowered construction costs when used. Architects everywhere are specifying it. Get into this lucrative market now – send for our descriptive, fully illustrated bulletin showing the complete line of Form-crete steel forms – write today!

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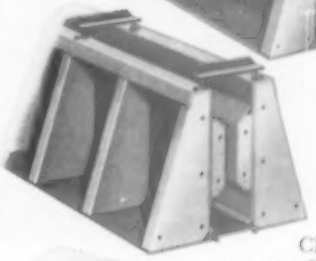
HEIGHTS: 12" to 20"
WIDTHS: 6" to 10"



CLASS II
HEIGHTS: 20" to 32"
WIDTHS: 8" to 12"

CLASS III
HEIGHTS: 36" to 48"
WIDTHS: 14" to 18"

CLASS IV
HEIGHTS: 52" to 64"
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The Concrete Pipe Company of Ohio, Inc., for a number of years was forced to rent a portable crane to handle large, heavy, cumbersome pipe at its North Randall, Ohio, plant. Operating and servicing crane required three men full time.

When the versatility of a Gerlinger fork lift truck was demonstrated... when it was shown that it not only could do the work of the rented crane, but also could transport pipe in the yard *and* in the drying kilns, as well as load trucks... *all a ONE-man operation*... the economies of Gerlinger mechanical handling were soundly proved!

Since then, Concrete Pipe of Ohio has acquired a fleet of three Gerlinger fork lift trucks which are kept profitably busy at both the main plant and the Erie, Pennsylvania, plant.

Versatile Gerlinger proves invaluable to Concrete Pipe of Ohio for yard, kiln, transporting jobs.

Gerlinger Powerhouse makes light work of heavy, cumbersome pipe, replacing costly, limited-in-use crane in two plants.

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4 to 8-ton capacity.
Lifting heights from 10' up to 18'.

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G-415

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Gerlinger Fork Lift Trucks consistently outperform other material handlers in the concrete field. Gerlinger's exclusive counter-active weight distribution eliminates the common problem of varying load widths and weights of pipe, brick, tile and concrete block. Gerlinger equipment can save time, money and manhours for your firm, too. No obligation.

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Veteran dispatcher Harry L. Pinkerton coordinates all truck movements with two-way radio. Rack on desk contains complete record of each truck's daily activity

Centralized Radio Dispatching Boosts Efficiency

By LEE HINDER*
and ANDREW HILLIARD†

FACED WITH A VEXING PROBLEM, the Anderson Concrete Corp. of Columbus, Ohio, took decisive steps to solve it. The problem was: how to coordinate ready-mixed concrete deliveries from seven widely separated batching plants.

Ralph H. Anderson, the firm's president and long a leader in the industry, had been studying the possibility of using two-way radio in his mixer fleet. It was his belief that all dispatching could be handled best from a central point, permitting trucks to be loaded at a plant nearest the job site for fast service to customers. Results of his study showed that centralized radio dispatching was the answer. It would give his dispatchers better control of mixers. Improved coordination between trucks and jobs would result in reduced operating costs and faster customer service.

With these objectives in mind, Anderson went to work to set up a centralized radio dispatching plant. One of his customers in the Columbus area, who had been using two-way radio with success for some time, suggested an RCA installation. Right then, Mr. Anderson called in RCA specialist Paul Bronesky to set up the best possible system

*Executive vice-president, Anderson Concrete Corp.
†RCA Communications Products Department. Photos furnished courtesy RCA Communications Products Department.

Efficient three-man dispatching team controls all deliveries from central dispatch office. From left to right: Harry L. Pinkerton operates radio, Mason R. Seymour receives telephone orders, and J. Ernest Turner sets up delivery schedules

Ralph H. Anderson, who pioneered use of radio for ready mix operations, feels it represents the greatest single advance in firm's 28-year history

for him. Soon, 65 concrete mixer trucks and 13 service cars were equipped with 30-watt mobile radio units. The central dispatch point at the main plant was equipped with a 60-watt transmitter-receiver. A remote-control unit was set in the service garage.

Harry L. Pinkerton, Anderson's chief dispatcher, now had a new tool to work with—a tool that let him control all mixer trucks every minute of the day. Results from this new system were immediate and conclusive. Trucks could be diverted from one plant to another without loss of time. Drivers could report job conditions, customer needs, time of departure, and other information. Altogether, the system paid off in better customer relations and better control of both plant and mixer delivery functions. As Pinkerton points out: "With radio, we now control our mixer trucks all the time 60 minutes of every hour. As a dispatcher, radio has taken much tension out of my daily routine."

Pinkerton, a veteran of long service with Anderson, refers to the history of the company as "before radio" and "after radio." It's his job to handle all radio dispatching, while two other dispatchers alternate in taking customer orders and setting up delivery schedules. Telephone orders are received at the central dispatching point, and the radio dispatcher contacts a mixer at a plant

Truck mixer driver Ami Thomas radios dispatcher after completing job and immediately receives instructions for next delivery

nearest the job site. If required, a fully loaded truck can be "on location" within minutes after an order has been received. With radio, and this three-man dispatching team, Anderson is enjoying a new high in delivery efficiency.

Efficiency is up 20 percent, and costs are down. Mr. Anderson himself a dispatcher for the company in the early thirties, feels strongly about the value of his radio installation. He reports that ten trucks with radio are now doing the job better and faster than 12 or more trucks without radio. He believes that radio gives 20 percent more deliveries per day. More important, radio has allowed him to better coordinate the entire operation. "As an example of this increased efficiency," he states, "we find that we are now able to close our seven plants one hour earlier every night because of close contact with every mixer at every job. Radio lets us know if all jobs have enough concrete to complete the day's work."

Driver reaction to radio is good. They are "sold" on it. Now, if a contractor needs more concrete at the job site, the driver can tell the dispatcher and another truck can be diverted to the area fast. This flexible delivery helps to eliminate contractor overtime. Conversely, if the customer has over-ordered, the driver can be sent by the dispatcher to another nearby job. Radio at Anderson has eased the burden of driver responsibility, has kept management informed of work progress, and has promoted customer good will. As one veteran Anderson driver puts it: "Having a radio in the cab is just like having the dispatcher riding with you."

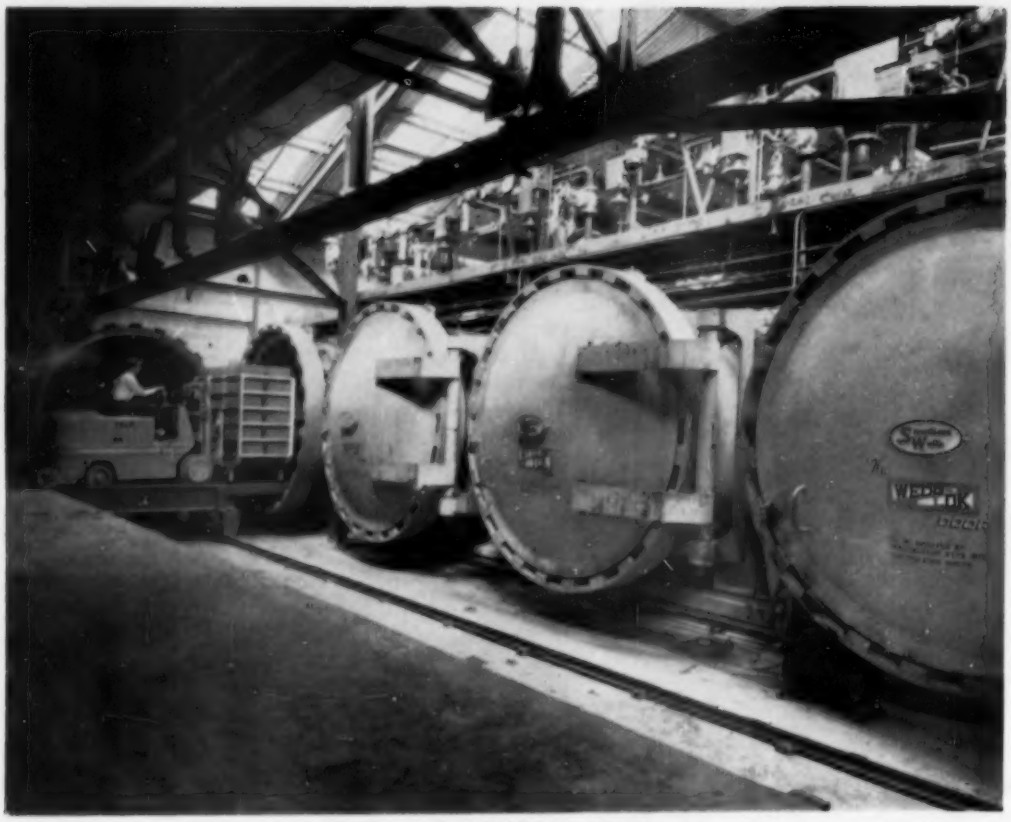
Fast service on truck breakdowns makes drivers happy. In pre-radio days, a driver lost time in searching for a telephone to ask help. More often than not, his load had to be dumped to prevent it from setting in the mixer. With radio, Anderson's drivers can report immediately such emergencies and get fast action. The remote control unit in the service garage lets the driver talk directly to the mechanic and give him complete information. Within minutes after the breakdown, an experienced serviceman is speeding to the scene with full knowledge of the repair job that awaits him. When he has completed his work and the truck is back in service, he can radio the office right away to give a completed job report. If necessary, he can be sent to another repair job without returning to the garage.

Improved yard operation has followed use of radio. In addition to seven concrete batching plants, Anderson Concrete Corp., operates an asphalt bituminous plant in the Columbus area. To keep a smooth flow of trucks moving in and out of these yards, drivers radio in after completing each delivery and are sent to one of the plants for their next load. That plant is told that a truck is on its way, and is prepared for loading as soon as the truck enters the yard. This system eliminates truck line-ups and keeps a steady stream of trucks moving in and out of all plant yards.

The Anderson Concrete Corp. has grown to its present size from a one-plant operation in 1928. In those days, Anderson was hauling concrete in specially equipped dump trucks. Transit mix entered the picture in 1934, and the multiple plant system came into being. The Bituminous Concrete Corp., an offspring of the parent company, was formed in 1945. Today, it operates three "black top" plants in the Columbus area.

Radio has added a new dimension to the ready-mixed concrete business, according to Mr. Anderson. It has helped his firm to grow. "It's the biggest advance in our 28 years of existence. We think radio is just as important as the mixer on our trucks. In fact, we wouldn't consider owning a mixer truck without a radio in the cab!"

What about cost? Anderson estimates that radio has saved him at least 30 min. per day per truck. In the four years the radio system has been in operation, it has paid for itself many times. It's his opinion that radio pays—that it is just as essential for the small plant operation as well as the large multiple plant organizations.



Loading one of the four new autoclaves with platform lift truck

Illinois Brick Co. Goes to Autoclaves

At Block Plant No. 2

By HUBERT C. PERSONS

ILLINOIS BRICK CO. kept its spot as one of the country's most efficient producers by adding recently four electronically controlled autoclaves at its Block Plant No. 2.

The company has been acclaimed for its advanced engineering ideas put to work at Plant No. 2 when it was opened in 1947 (ROCK PRODUCTS, November, 1947. p. 122). Officials say that the $400,000 spent for the new autoclaves and accessory equipment brings plant investment to more than $1,000,000. Located at Blue Island, Ill., just south of Chicago city limits, the plant makes lightweight concrete masonry units that meet dryness and strength specifications for Grade A block.

Each new autoclave, made by the Struthers-Wells Corp., is 102 ft. long with an inside diameter of 9½ ft. Each will accommodate 29 block racks holding 114 standard 8- x 8- x 16-in. block. The automatically controlled Wedg-Lok doors also were made by the Struthers-Wells Corp.

It was necessary to dismantle five of the original 20 low-pressure steam-curing rooms to make space for the new autoclaves. Space is left for a fifth

Lift truck moving loaded rack into autoclave. Area between autoclaves and working floor is bridged by a four-wheel transfer car to support lift truck.

high-pressure autoclave, if required. The remaining 15 old curing rooms are now used as presetting rooms for the block before they are loaded into the autoclaves.

The autoclaves are installed parallel to each other on a concrete base about 3 ft. below the level of the main plant floor. The front of each kiln is about 12 ft. from the edge of the working floor. This distance provides space for the kiln doors to swing outward.

The area between the kilns and the working floor is bridged by a 4-wheel transfer car so that the specially designed Yale lift trucks may move onto the rails in the kilns. Wheels of this transfer car, or moveable bridge, run on a pair of rails extending the full distance in front of the four autoclaves. The bridge is shifted manually from autoclave to autoclave, as needed.

The lift trucks have rubber tires for running on the working floor. They also have flanged steel wheels to run on the transfer car and autoclave tracks. Steel wheels are attached to the hubs of the lift trucks.

The change from low pressure to high pressure steam curing was in line with the company's policy of making only block that meets the most rigid specifications, Hugo Filippi, senior vice-president and chief engineer of the Illinois Brick Co. explains: "In 1954, we began an investigation of the merit and advantages of high-pressure steam curing, and visited many plants in various parts of the country in which autoclaves had been installed. Our conclusion was that high-pressure steam curing would minimize shrinkage cracks and produce a stable lightweight block meeting the most rigid present day specifications."

The company employed St. John, Platt & Carlson, Buffalo, N.Y., as consulting engineers. They prepared the mechanical and electrical plans and wrote the specifications for the autoclaves, boiler plant and accessories. All other plans required for the project were prepared by Mr. Filippi who also supervised the construction.

Installation of the autoclaves was completed in October, 1955. It included vacuum rings on all four units, not required now but necessary if a vacuum system should be installed. The autoclaves were operated for only one cycle a day for the first four months. Two-cycle operation was started in February, 1956.

In curing, block are held on racks for 2 to 4 hr. presetting time. Then they are moved into the autoclaves. When an autoclave is filled, steam is turned on gradually. Pressure is raised to 150 p.s.i. or 366 deg. F. in 3 hr. The autoclave is kept at that temperature and pressure for 5 hr.

Steam is produced in a Combustion Engineering Co. oil-fired water-tube boiler with a capacity of 30,000 lb. of steam per hour. Burner is a Type VP made by Peabody Engineering Co.; No. 6 oil is used. Auxiliary boiler house equipment includes:

Laying up wall of autoclaved concrete block

Republic steam flow meters; a 100,000-gal. oil tank; two 15,000-gal. water tanks; two Worthington boilerfeed pumps and a Cochrane water treatment system. The autoclaves are insulated with 2 in. of fiber glass under a waterproof plastic cover.

At the end of 5 hr., steam is shut off by a Foxboro automatic control valve and the blowdown valve is opened. Steam is exhausted into the atmosphere through a blowdown system for about 25 min. At the end of that time, the pressure in the autoclave has dropped to 0.35 p.s.i. Then the door is opened and a ventilating fan at the rear of the autoclave is started. This pulls out the remaining vapor toward the rear of the autoclave so that removal of the block racks may begin at the front of the autoclave. Removal of block from an autoclave requires about 45 min. When an autoclave has been emptied, recharging is started without delay and a new curing cycle begins.

Aggregate used is Waylite in two sizes: minus $\frac{3}{16}$-in. and $\frac{3}{16}$- to $\frac{3}{8}$-in. It is used exclusively without sand or screenings. Only one change was made in the concrete mix when the high pressure method of curing was adopted. It was the addition of a small amount of Chicago fly ash as a pozzolan with Type I portland cement.

Aggregate and fly ash are delivered to the plant by trucks and bulk cement is delivered by railroad car. Block Plant No. 2 is one of the few concrete block plants in the country with complete undercover unloading facilities.

There are four steel bins for aggregates, each holding 172 cu. yd. There are two 900-bbl. cement bins. Each cement bin is placed between two aggregate bins. Block are loaded on trucks, then are stockpiled in the yards by Clark fork lift trucks.

The plant makes all standard shapes of concrete block in modular sizes and many special shapes. They are marketed under the trade names "IB Waylite Regular," and "IB Waylite Ground Face" block. Face grinding is done on a Gardner grinder.

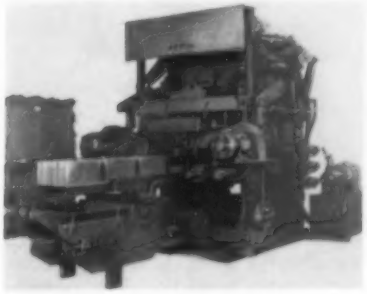
Block are cast by two Besser Vibrapacs and two Oswalt block machines. They are fed by four Besser 50-cu. ft. mixers, which are serviced by two Butler automatic weigh batchers.

According to Mr. Filippi, all IB block are stabilized at 25 percent moisture content at time of delivery. Block test to 1000 p.s.i. Tests are made constantly in the plant laboratory, to insure uniform quality block. Equipment in the plant laboratory includes a 100-ton Forney compression testing machine, a linear shrinkage comparator and an oven for determining moisture content.

The plant has yard storage space for about 1,500,000 block. Much of storage space is under cover. A large fleet of trucks is under contract for delivery of block to job sites.

Officers of the Illinois Brick Co. include John Goodridge, president; Hugo Filippi, vice-president and chief engineer; and George Gammie, vice-president for sales. Alfred Neubieser is manager of the company's block plants. Clyde L. Stewart is production engineer.

NEW MACHINERY



Hydraulic Block Machine

GENE OLSEN CORP., 407 Grace St., Adrian, Mich., announces the Gocorp "Jet," a plain pallet, hydraulic two-block machine capable of producing 600 block per hour. The frame has 1-in. side plates braced with plate and structural members. The Jet includes such features as quick-change feed; time and changeable strip speed; and automatic, low voltage height control. Working parts are easily accessible for cleaning, and full height molds can be changed in 20 min.

Enter 100 on Reader Card

Compressors

ATLAS COPCO PACIFIC INC., San Carlos, Calif. announces the new NT series of two-stage, two-cylinder, single-acting compressors with full pressure lubrication. They are available in models ranging from 10 hp., 45 c.f.m., to 25-hp., 105-c.f.m. units.

The illustrations show, top, a 25-hp. compressor, and bottom, its installation in the Emeryville, Calif., plant of George P. Forni Co., manufacturer of concrete water meter boxes. The compressor operates air vibrators, grinders, bench rammers, jolt squeeze machines, sander, centrifugal casting machine and automatic conveyor.

Enter 101 on Reader Card

Lift Truck Series

HYSTER CO., 2902 N. E. Clackamas St., Portland 8, Ore., announces Hyster 30, 40, and 50, a pneumatic-tired lift truck series of 3000-, 4000-, and 5000-lb. capacity. Features of the new line are trunnion steer wheels, short overall length and short turning radius.

Load lifting speed of 48-f.p.m. for the Hyster 50 and 50-f.p.m. for Hyster 30 (illustrated) and 40 are reported, and forward travel speed of 13.8 m.p.h. is listed for all models. Optional features include power steering, "Hystamatic" fluid torque converter drive, LP-Gas installation, dual front wheels, overhead guard and "Free Lift".

Enter 102 on Reader Card

Communications System

TALK-A-PHONE CO., 1512 S. Pulaski Ave., Chicago, Ill., has introduced Talk-A-Phone LCM-8806, a six-station wireless selective master intercommunication system requiring no cables or installation.

The six-channel selector, wireless selective communication, Uni-Trans feature, and Sonic Gate Circuit are components of the system. The LCM-8806 is adaptable for additional master units, starting with two masters. The unit plugs into the conventional electric outlet.

Enter 103 on Reader Card

Masonry Saw

J & H PRODUCTS CO., Dallas, Tex., has introduced the "Supreme" masonry saw designed for economical cut-off, notching, and angle fitting in all types of masonry units. The table or cutting head can be locked in position as required, and the head can be cranked up or down to the desired height without linkage adjustment. Vertical blade travel is controlled by a pedal. It can be used for wet cutting (having splash guard and coolant nozzles) or dry cutting. Any type of masonry blade may be used. V rail table travel and full floating cutting head guard the blade against jamming.

Enter 104 on Reader Card

Truck Mixer

CHALLENGE MANUFACTURING CO., 7400 E. Bandini Blvd., Los Angeles, Calif., has introduced an improved "ETO" (Engine-Take-Off) Drive Mixer that can be installed on any conventional-make truck. Power is taken from the front of the truck engine and transmitted to the mixer by simple automotive-type drive lines.

The new Challenge "ETO" Drive is engineered for 5-, 5½-, 6-, and 6½-cu. yd. Challenge Mixers and makes possible the use of shorter wheelbase trucks. The illustration shows a cut-away view of the offset front drive mounted on the outside of a Reo truck frame and the input drive assembly.

Enter 105 on Reader Card

Truck Mixer Controls

CHALLENGE MANUFACTURING CO., 7400 E. Bandini Blvd., Los Angeles, Calif., has introduced two new operating controls for its "Pacemaker" truck mixers. The "Uni-Lever" controls the entire charging, mixing and discharging operations. With this one lever, the driver has control of the mixer during the entire job operation. A "Uni-Lever" Cab Control is the second control offered as standard equipment. It enables the driver to move the truck and discharge concrete at the same time.

A new hand throttle is another feature which has been developed for separate-engine models.

Enter 106 on Reader Card

Batching Plant on Wheels

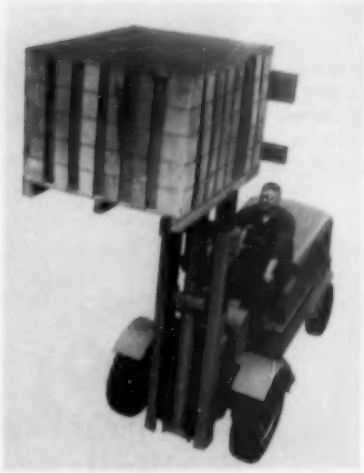
NOBLE CO., Oakland, Cal. has announced the availability of the Noble-Mobile Batching Plant on Wheels for job-site batching. Driven on highway to job site, the unit goes into production at once as it requires no foundations or electrical wiring. Aggregates are charged with front end loader, crane or conveyor. Bulk cement is utilized, and batching is automatic. In the illustration is depicted a typical set-up, that of Wamix, Inc., Dallas, Texas. Long hauls are eliminated for the mixer trucks, permitting three trucks to do the work of 11, it is reported.

Enter 107 on Reader Card

Industrial Hose

AEROQUIP CORP., Jackson, Mich., has produced Teflon Hose with detachable, reusable fittings. Teflon, technically known as tetrafluoroethylene, is inert to most chemical action. The hose is proposed for applications where unusual exposure to wide temperature ranges and injurious chemical action is encountered. It is recommended for steam lines and hot asphalt lines and other installations with fluid temperatures in the minus 100 deg. F. to the plus 500 deg. F. zone.

Enter 108 on Reader Card



Forklift Truck

TRUCK-MAN DIVISION, Knickerbocker Co., 675 Liberty St., St., Jackson, Mich., announces the Y-60 forklift truck, featuring a 6000-lb. lift and having power steering as standard equipment. Engineered for heavy-duty work in concrete products plants, the unit is powered by a 226-hp., 20-m.p.h. Continental engine. Its telescoping mast has a 9-in. free lift with a 10-deg. forward tilt, 4-deg. back.

Enter 109 on Reader Card

Concrete Accelerator

Forrer's, 2225 N. Humboldt Ave., Milwaukee, 12, Wis., a division of Spray-O-Bond Co., announces Forrer's Accelerator, a product which lowers the freezing point of a concrete mix to 15-deg. F. and speeds up setting. The solution is available in 1, 5, 30, and 55-gal. drums. Rust inhibitor is added to the mix to prevent it from affecting reinforcing steel or tools.

Enter 110 on Reader Card

Masonry Blade

CLIPPER MANUFACTURING CO., 2800 Warwick, Kansas City, Mo., has announced CD-7245, a super-bonded diamond blade for low cost cutting of concrete products. Longer blade life is said to be possible with the new blade which achieves rapid cutting of block. It is recommended for use on products containing slag, pumice, expanded shale, cinder, crushed stone, and river gravel.

Enter 111 on Reader Card

Concrete Conveyor

AMERICAN CONVEYOR CO., 2133-37 S. Christiana Ave., Chicago 23, Ill., has added a 40-ft. Con-Vay-It Concrete Special to its line of conveyors. Elevations to 20 ft. at 30 deg. are possible with the unit which is powered by a 9-hp. Wisconsin gasoline engine. A snub pulley has been added to increase belt power up to 20 percent. The conveyor unit can be equipped with a high-boy elevating device and swivel wheel assemblies to permit sidewise movement when pouring wall forms. Also, front and rear swivel wheel frames have been designed for the complete line of Con-Vay-It Concrete Special Conveyors for horizontal conveying on slab pours.

Enter 112 on Reader Card

Wide-Axle Forklifts

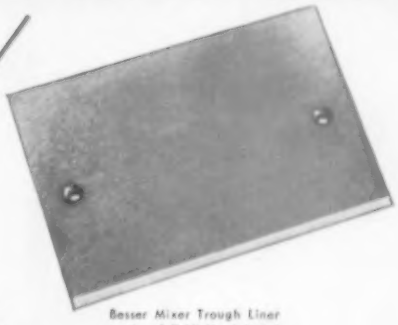
GERLINGER CARRIER CO., Dallas, Ore., announces model W forklift truck, available in six capacities: 12,000-, 15,000-, 16,000-, 18,000-, 20,000-, and 22,000-lb. Designed for heavy-duty materials handling with wide axles front and back, the forklifts have tracking wheels—rear steer wheels aligned with front drive wheels. All six wheels are standard 20-in. truck wheels using standard pneumatic truck tires.

Power is supplied by a 160-hp. Ford V-8 industrial overhead valve engine. Where continued low engine speeds dictate higher engine torque, a Hercules JXD is optional. Hercules DOOD diesel engine is available, as is torque converter.

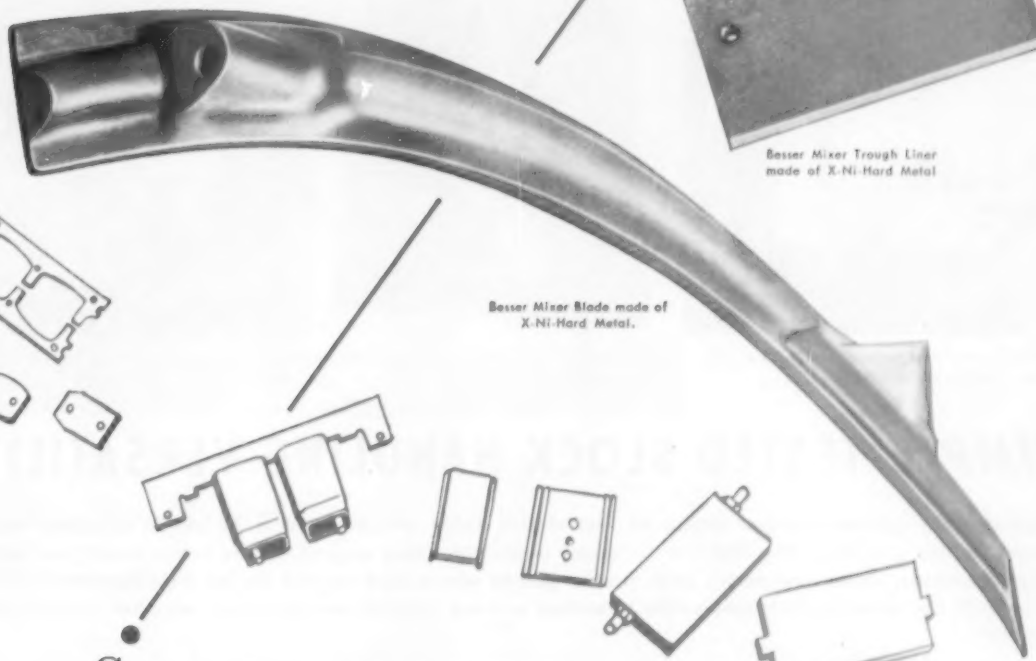
Enter 113 on Reader Card

BESSER Mixer Blades and Liners

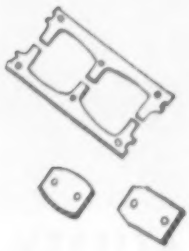
LAST LONGER

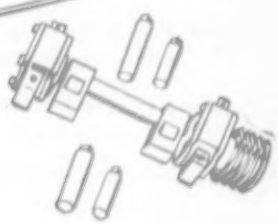


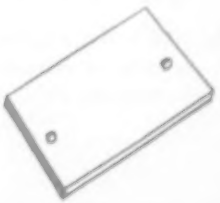
Besser Mixer Trough Liner made of X-Ni-Hard Metal



Besser Mixer Blade made of X-Ni-Hard Metal.







Genuine Besser Mixer Blades and Liners are made to outlast other similar parts on the market. Here are two reasons why. (1) Besser has complete control of the entire manufacturing process. We have our own foundry. We have our own production facilities all under one roof. We have our own modern heat-treat department. And, our inspectors check every part before it leaves the plant. (2) Besser uses the finest ingredients to make Genuine Besser X-Ni-Hard Metal. Castings are properly heat-treated and stress-relieved to give long service.

Always use Genuine Besser X-Ni-Hard Blades and Liners.

Tip to Blockmakers — To accommodate large aggregate, always maintain ½" clearance between liners and blade when replacements are made. With a clearance greater than ½", material accumulates at bottom of mixer, thereby resulting in a poor mix.

BESSER Company

BOX 135, ALPENA, MICHIGAN, U. S. A.

Complete Equipment for Concrete Block Plants

BESSER Genuine PARTS

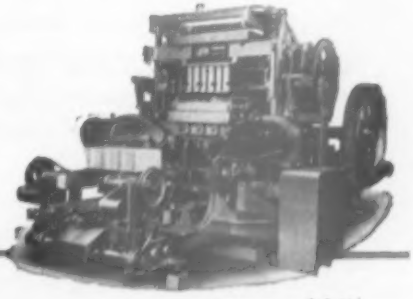
BESSER PARTS STORES

ATLANTA
901 Sycamore
Decatur, Georgia
Phone:
DEarborn 5781 & 5782

BUFFALO
116 Michigan Avenue
Buffalo, New York
Phone:
MOhawk 3990 & 6019

LOS ANGELES
15026 Oxnard Street
Van Nuys, California
Phone: STate 5-5457

NEWARK
140 Delancy Street
Newark, New Jersey
Phone: Mitchell 2-1434

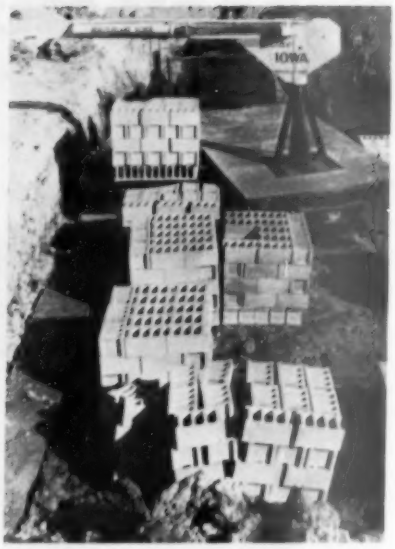


A 6-104

Enter 1044 on Reader Card

Self-Centering Fork, Cradled Trolley and Boom, showing Boom lock.

Underside of truck bed showing simple boom rotation mechanism.



Typical job-site view, showing ease of placing cubes for use.

SIMPLE, TESTED BLOCK HANDLING VERSATILITY

Operator has complete control with a 25 foot electric cable which activates hydraulic cylinders moving boom, trolley and fork. The IOWA ★ Unloader is the safe, sure way to handle cubes under most operating conditions; cubes are easily and quickly placed where used around the job site. Movement of cube is smooth and positive; fork automatically centers without manual manipulations whether loaded or unloaded.

The IOWA ★ Unloader offers the ultimate in flexibility. It loads quickly and easily, requires virtually no truck jockeying, no pipes, bars or stifflegs to carry or move.

The IOWA ★ Unloader unloads most loads at ground level, or into excavation up to 11 feet without extra truck jockeying. The IOWA ★ Unloader can unload from another truck.

The IOWA ★ Unloader is activated by smooth, positive hydraulic cylinders. There are no hydraulic motors, speed reducers, sprockets, chains or gears. Minimum maintenance keeps equipment in top operating condition.

The IOWA ★ Unloader is available in heights to accommodate a profitable load of either lightweight or concrete blocks. Its use eliminates crushing, breaking, and chipping of block in unloading. Positive, rubber padded boom lock eliminates wear; prevents rattle.

FEATURES:

POSITIVE, HYDRAULIC CYLINDERS activate movement of boom, trolley, and fork.

SINGLE ELECTRIC CABLE CONTROL enables operator to virtually bring load to him for safe gentle placement exactly at point of use.

AUTOMATIC CENTERING FORK REQUIRES NO manual manipulation to compensate for changes in center of gravity when empty or loaded. ***CRADLED TROLLEY*** reduces wear on lifting cable.

Write or Telephone

WATERLOO UNLOADER CORP.

Post Office Box 92, • Telephone: ADam 2-8588 • Waterloo, Iowa

Enter 1129 on Reader Card.

Under side of perlite concrete roof slabs on new building for Hospital Care Corporation, Cincinnati, Ohio

By HUBERT C. PERSONS

Open Up New Market for Wide Variety of

Precast Lightweight Concrete Products

PERLITE AND EXPANDED SHALE AGGREGATE are being used to make lightweight channel slabs, roof tile, acoustical and insulating roof slabs, and special precast products at the new plant of Structural Precast Concrete Corporation. Edgar M. Johnson and Lee J. Workum, who have operated Cinder Products, Inc., in Cincinnati, Ohio since 1933, launched the new company with the precast plant adjoining the block company's operations in Elmwood Place, a suburb of Cincinnati.

The precasting plant is housed in a concrete masonry structure, 80-ft. long and 60-ft. wide. This contains a steam curing room, 68-ft. long, 10-ft. wide and 8 ft. high, where the various concrete structural units are cured at atmospheric pressure. The curing cycle is 12 hr. at a temperature of 160 deg. F. for units made with expanded shale aggregate. The same cycle with a temperature of 120 deg. F. is used to cure perlite aggregate slabs.

Batching tower, bucket conveyors, cement and aggregate bins and weigh batcher were made by C. S. Johnson Co. Cement and aggregates are delivered by rail and truck. Bucket conveyors carry these materials from underground receiving hoppers to the top of the 75 ft. batching tower. High early strength and air-entraining cements are used to meet definite requirements. Pozzolith, made by Master Builders, is used as an additive in some concrete mixtures. Mixes are designed to meet service needs.

The 27-cu. ft. paddle type mixer was especially designed for the plant by the DesPlaines Concrete Machinery Co. of Chicago. An automatic water meter attached to the mixer gives positive control of the amount of mixing water.

Concrete for the lightweight channel slabs for roofs is vibrated to obtain maximum density. The concrete mix is designed for an average compressive strength of 3500 p.s.i. A technical information sheet published by the Structural Precast Concrete Corp., says that this roof slab will "sustain a superimposed load of 65 lb. per sq. ft. with a factor of safety of 4, or an ultimate load of 250 lb. per sq. ft. uniformly distributed when the slab is resting on supports spaced the same as the purlins. "The roof slab webs are reinforced with galvanized wire mesh. The legs contain a ¾-in. or ½-in. deformed reinforcing bar with at least ½-in. of concrete on all sides. The channel slabs are cast in lengths up to 10 ft. The longer slabs are 3½-in. thick and weigh 13 lb. per sq. ft. The shorter slabs are 2-¾-in. thick and weigh 10½ lb. per sq. ft.

The perlite insulating roof tile is cast 2-⅜-in. thick, reinforced with galvanized wire mesh in 24-in. widths 3 ft., 4 ft. or 5 ft. long. This roof tile is designed to carry a superimposed load of 240-lb. per sq. ft. and to have a coefficient of heat transmission of not more than 0.240. Where insula-

Precasting building with batching, mixing and casting room, to the rear, and long curing room

Looking down curing room section showing mixing and casting area to the rear. Special precast corner units moving down roller conveyor

tion against sound is desired the floor or roof slabs may have fiber glass cast in the under side.

In establishing the new company, Mr. Johnson and Mr. Workum felt that the increasingly active building market in Southern Ohio, especially in the Cincinnati area would go for lightweight structural units in addition to lightweight masonry units for walls. This belief, they point out, has been amply justified.

Evidence of the general acceptance of the products made by the Structural Precast Concrete Corp. is seen in the use of this material for factories, warehouses, laboratories, hospitals, churches, schools and office buildings as well as for fine residences. Some of the recent projects on which lightweight roof or floor slabs have been used are:

Parts warehouse and office for a division of General Motors Corp. at Evendale, O., 90,000 sq. ft.

Addition to Fisher Body plant, Norwood, O., 25,500 sq. ft.

Research Facility Area Laboratory at Wright Patterson Field, Dayton, O., 56,000 sq. ft.

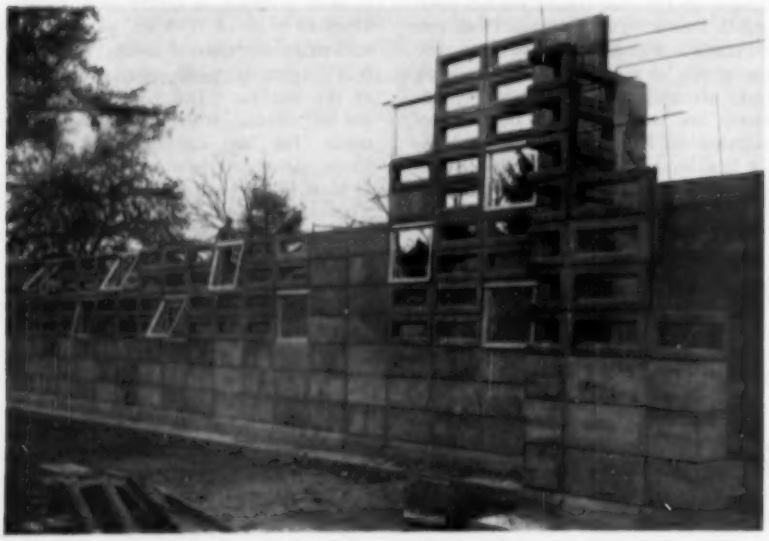
Aluminum Mill, American Brass Co., Terre Haute, Ind., 450,000 sq. ft.

Naval Hospital at Bunker Hill, Ind., 49,000 sq. ft.

Special wall and roof units made in the new plant of the Structural Precast Concrete Corp., were used in a new residence designed by Architect Frank Lloyd Wright in Amberly Village, Cincinnati.

In addition to Mr. Johnson and Mr. Workum who are respectively president and vice president and secretary, Marvin B. Turk is treasurer and general sales manager.

Special precast wall units were used in Amberly Village residence designed by Architect Frank Lloyd Wright



Reproduce Stone Products

CALIGARI PRODUCTS, Norfolk, Va. has developed a process using polyester resin and fiber glass to reproduce stone, marble and granite, and announces that limited quantities of the products will be available.

Cali-Stone is suggested by the manufacturer to makers of concrete block for installation on the block at the plant and sale as an integral part thereof. Larger than block sizes will be available in Cali-Stone, and in Cali-Marb and Cali-Granite as well, for application to a finished block building.

The new products are said to be not affected by adverse weather conditions, and to provide an insulating, waterproof, and weatherproof exterior. They are also intended for interior use.

Pipe Plant in Operation

BROWN SUPPLY CO. OF KANSAS, a division of Brown Supply Co., Lubbock, Tex., has begun operation of a concrete pipe plant in Garden City, Kan. Capacity is 2400 ft. of 12- and 15-in. pipe daily. Officers of the Kansas corporation are Dale Brown, president; E. H. Black, Pat Appling, Ogle Lemon and B. W. Rush, vice-presidents; E. S. Rush, secretary; and T. L. Timmons, treasurer.

F.C.P.A. Block Plant School

FLORIDA CONCRETE AND PRODUCTS ASSOCIATION will hold two programs this month at Jacksonville, Fla. "Block Plant Operation and Maintenance" and "Truck and Mixer Maintenance" are the subjects of the short courses, designed for foremen, superintendents, mechanics and chief mechanics of member companies.

Merchandising

Ready-Mixed Concrete

46: A producer views the ready-mixed concrete business. The third article on this subject deals with cement industry co-operation

By JAS. A. NICHOLSON*

Booklet prepared by Portland Cement Association containing suggestions for advertising

SEVERAL YEARS AGO, acting on a request made by a committee of the National Ready Mixed Concrete Association, staff members of the Portland Cement Association prepared a package of Promotional Aids planned to assist producers in merchandising ready mixed concrete.

Promotional Aids prepared by the Portland Cement Association included direct mail pieces, envelope stuffers, advertising blotters, radio spot announcements, and an advertising kit. From P.C.A. surveys, it is indicated that ready-mixed concrete producers have made most extensive use of the kit.

The advertising kit containing cuts and copy for newspaper ads is still available free for the asking. P.C.A. envelope stuffers which can be made into an individual producer's own advertising pieces have also been widely used by members of our industry. These stuffers have been used as handouts at building show exhibits. They have been left at doors of prospects. They have been placed in envelopes along with invoices, bills, quotation proposals, and sales letters.

A producer who either operates in a farming market or goes in strong for consumer business, including the "do-it-yourself" trade, finds the radio spot announcements a good way to reach those making farm improvements or doing remodeling around the house.

The original direct mail pieces prepared by the P.C.A. went after the general trade, contained many pictures suggesting concrete improvements, and simply folded into convenient size for mailing, with no envelope being required. The Portland Cement Association has since prepared several specific direct mail pieces that have been designed to help a producer go after the farm and home improvement markets.

In direct mail advertising, a producer can direct his selling message to customers and prospective customers. In using direct mailing, lists must be kept up to date. Obsolete listings mean wasted dollars. Salesmen and other field representatives should be encouraged to report name changes, additions, and deletions. If a producer intends to send some direct mail literature periodically to a large list of prospective customers, it would be wise to include a postal card in an early mailing so that recipients could indicate whether or not they are interested in receiving future mailings.

The first blotters, in addition to advertising, listed a number of suggestions to contractors on how to improve job handling of concrete. Colored blotters listing both new advertising messages and several suggestions for improving the quality of concrete in place are now available.

The last P.C.A. promotional package that has come to my attention included instructions on how to use aids, three direct mail pieces, the advertising kit, three envelope stuffers, a packet on radio spot announcements, and two advertising blotters. The packet on radio spot announcements (30 spot announcements from 30 to 60 sec. in length) gives a producer considerable material to use in his commercials.

Unquestionably, many producers have been able to make good use of these P.C.A. promotional aids. In my own analysis, some of the aids aren't sufficiently slanted to hit today's selling problems of the ready-mixed concrete operator. A case in point is the stuffer titled "Basements are Popular". The sales pitch is to include a basement in plans for a new home. The pictures shown feature concrete block basement walls. A producer is interested in promoting poured basement walls and in selling ready-mixed concrete for that purpose. If we aren't going to get the basement wall business, we'd do better on basementless homes—with the good volume of yardage and prompt unloading of truck mixers involved in slab construction.

It is recognized that a good many ready-mixed concrete producers are also concrete block manufacturers. No one objects to P.C.A.'s stuffers and brochures promoting the use of concrete block. The question is whether such material belongs among the promotional aids prepared for the ready-mixed concrete industry. Many producers and poured wall contractors would appreciate the availability of several effective promotional aids that would help both of them secure their

* Pres., Nicholson Concrete Co., Toledo, Ohio

COLUMBIA REPRESENTATIVES LIKE TO TALK ABOUT COSTS

LOW INVESTMENT COSTS!
LOW MAINTENANCE COSTS!

They like to talk about quality, too... the combined quality of experience and engineering know-how that enables you to produce superior concrete masonry products... at the lowest per-unit cost in the industry!

YOU START SAVING WITH LOWER INVESTMENT

Simplicity of design and construction combines with positive hydraulic principles to give the Columbia machine its great economy of original cost. For example, Columbia's famous *Model 8*—including pallet feeder, mold, feed box agitator, electronic controls and panel, all motors and switches, pumping unit and electronic height and density control is priced as low as **$10,385** F.O.B. VANCOUVER

AND KEEP SAVING WITH LOWER MAINTENANCE

Columbia's positive hydraulic principles eliminate cams, levers, gears, belts, pulleys, gear head motors, shear pins and other costly wearing parts, to keep maintenance costs at an absolute minimum. All other parts are completely covered to seal off grit of plant operation. One Columbia user* reports a per-unit maintenance cost of 1/10th cent on 1,600,000 equivalent units.

If you are planning a plant expansion, a new plant or want to add concrete block production to your present business, call us today at our expense. We will have a qualified man in your plant within 24 hours. No obligation! Phone OXford 4-1501.

*Name furnished on request.

Columbia **MODEL 8**

Rugged construction... minimum wearing parts. Easy to lubricate and clean... all bearings sealed. Fully automatic... hydraulic, electronic operation. Occupies minimum floor space. Uses plain pallets. Produces high-quality blocks as fast—or faster—than many machines costing three times as much.

Columbia **MACHINE**

Home Office: 107 S. GRAND, VANCOUVER, WASHINGTON

Factory Branch and Warehouse at Mattoon, Illinois.

District Offices in: Wisconsin, Illinois, South Carolina, Mississippi, Florida, New Jersey, Virginia, California, Massachusetts, Texas, Montreal, Toronto, Vancouver, B. C.

Two excellent samples of well-prepared advertising copy in P.C.A. Kit

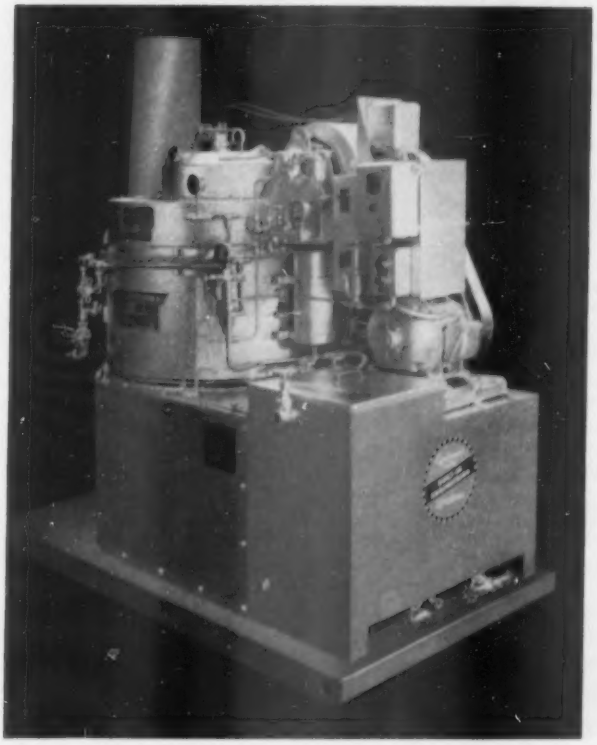
share of the basement business. A stuffer answering this need belongs in the promotional package.

It is not my particular intention to be critical of free help by the P.C.A. Unquestionably, in its promotional aids suggestions, the P.C.A. has made a valuable contribution to the ready-mixed concrete industry. The Portland Cement Association has a number of good advertising men on its staff. The shortcomings, if any, are probably due to the fact that (1) P.C.A. advertising men haven't had sufficiently close contact with the merchandising and advertising problems of the ready-mixed concrete producer, and (2) there has been a lack of active participation by producers in planning the program.

In fact, members of the P.C.A. staff were the first to recognize that the aids they had prepared would not fit a producer's problems in a particular market. The P.C.A. program was intended to primarily help a producer get started in developing his own promotional program. The individual producer could be further assisted by special promotion meetings held during conventions of area associations and the National Ready Mixed Concrete Association. The panel discussions on "Merchandising Ready Mixed Concrete" which have been regular features at recent national conventions are a good start in this direction. Additional pre-convention planning and increasing participation of promotion-minded speakers (whether they be producers or not) have been suggested as further steps that would be helpful to ready mix operators in developing their own programs.

The Portland Cement Association has recently embarked upon a new co-

NEW MODEL 900 KWIK-STEAM GENERATOR!



- ★ 35 boiler hp at the touch of a switch
- ★ Completely automatic operation . . . burner cuts in and out as required
- ★ No steam explosion risk . . . approved safety controls
- ★ Small, compact, 80% efficiency

Low cost—produces 225 psi steam at 80% efficiency as you need it . . . when you need it. Ideal for producing winter ready mix concrete and curing concrete products. For complete information, send for bulletin 22. Littleford Bros., Inc., dept. LB 206, 400 E. Pearl St., Cincinnati 2, Ohio.

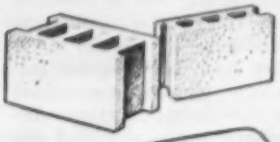
LB LITTLEFORD

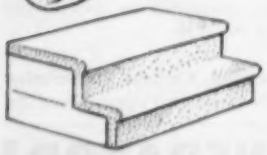
Enter 1068 on Reader Card

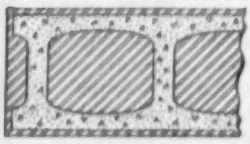
How Some Manufacturers Make *BETTER* Concrete Products at *LOWER* Cost, with *FLY ASH*

Fly Ash is a low-cost product. It is an extremely fine, wettable powder, mainly silica and alumina. Most of its particles are spherical in shape. It is a highly effective Pozzolan.

Many alert manufacturers, using a percentage of Fly Ash with the Portland cement, turn out a concrete of equal or improved qualities at a substantial saving in cost of materials.







Compressive Strength: Fly Ash Increases It

Many independent tests on concrete products made with a percentage of Fly Ash have shown equal or better 28-day compressive strengths as compared to those made with straight Portland cement. There is little or no reduction in 3-day strengths, especially where steam curing is used.

Sulfate Resistance: Fly Ash Improves It

Sulfate resistance is highly important in concrete sewer pipe. Tests on specimens of concrete containing a portion of Fly Ash showed greater resistance to the action of sulfate waters than did straight Portland cement concrete.

Finish and Texture: Fly Ash Makes Both Better

Comparisons show that concrete products made with mixes containing a percentage of Fly Ash have sharper edges and corners . . . smoother, more uniform surfaces . . . than products made with straight Portland cement.

Life of Machines and Moulds: Fly Ash Lengthens It

Fine, spherical particles of Fly Ash have a "ball bearing" action which increases flow and plasticity of the concrete and reduces abrasion. This means less wear on mixer blades, hoppers and moulds—longer life of your equipment.

Filling Moulds and Frames: Fly Ash Helps It

The greater plasticity of concrete containing Fly Ash reduces adhesion to pallets, and permits faster and more complete filling of moulds.

FLY ASH improves Compressive Strength, Texture, Finish, Sharpness of Edges and Corners, and Uniformity of Color of the Concrete.

FLY ASH increases "Green" Strength, Resistance of the Concrete to Penetration by Water, and Resistance to Action of Sulfuric Acid and Sulfates.

FLY ASH reduces Cost of Materials, Maintenance on Wearing Parts, Sticking to Pallets and Moulds, Cracking in Handling of the Concrete.

Write for Information or Technical Help

It costs nothing to get the facts on Fly Ash; it might mean a great deal in the success of your operation. Contact any of the following for specific information and technical data on use of their Fly Ash of proven performance.

CHICAGO FLY ASH COMPANY
228 N. La Salle St., Chicago 1, Ill.

G. & W. H. CORSON, INC.
Plymouth Meeting, Pennsylvania

DETROIT EDISON COMPANY
2000 Second Ave., Detroit 26, Mich.

ATLAS FLY ASH, INC.
2450 William St., Buffalo 6, N. Y.

Enter 1071 on Reader Card

operative venture indicating the cement industry has finally realized that the ready-mixed concrete producer is the No. 1 outlet for its product.

Acting on a suggestion made by Stanton Walker, N.R.M.C.A.'s director of engineering, a program of cooperation on city street paving promotion has been undertaken by the Portland Cement Association and the National Ready Mixed Concrete Association.

To start the program, Ross G. Wilcox from P.C.A.'s general office was assigned on a full time basis to plan and coordinate the necessary promotional activities. It was recognized from the beginning that full cooperation between district P.C.A. officials and area ready mix producers would be a basic essential to the program's success. A number of years ago when P.C.A. representatives in the Toledo area were trying to sell city officials on concrete pavements, I know that I was "miffed" because our company was not advised (not even contacted) as to the local efforts being made by the Portland Cement Association. In the new program, all area operators will be asked to participate.

A decision was made to begin pilot studies in three cities—Spokane, Akron, and St. Paul. From data and experience gained in these communities, the intention is to develop a sound merchandising program that will successfully promote ready-mixed concrete for use in city street pavements throughout the United States.

It was my privilege to be a guest at the Akron meeting when Mr. Wilcox explained the new program to local producers and to state and district representatives of the P.C.A. The great interest shown by Akron dealers who were in full attendance at the initial meeting should convince P.C.A. officials that they can count on full support of the new program from local ready mix suppliers.

For years, many Midwestern producers have been critical of P.C.A. activities. It has appeared that state and district P.C.A. representatives were spending most of their time with public officials and road contractors working on the promotion of concrete for highway paving. Producers generally received little business from these promotional efforts. It hasn't seemed sensible to these producers that the ready-mixed concrete industry, the biggest user of cement (e.g., buying as much as 60 percent of the cement sold in Ohio) should receive so little attention from the promotional association representing the cement industry. It should be gratifying to ready mix producers everywhere that the Portland Cement Association has agreed to cooperate

on a nation-wide basis in this promotional venture.

The program goal is a greatly expanded street paving market for ready-mixed concrete. I take it both industries are in agreement that we are talking about ready-mixed concrete, not batched material from a dealer who also sells ready-mixed concrete. Too many ready mix dealers in many metropolitan areas now sell batched material to undercut the price of their own product as well as competitor's concrete. In my opinion, the new co-operative program will fail in any market where one producer tries to get all the paving business or insists upon the continuance of batching practices; the program will succeed in markets where ready mix dealers work together in common effort.

The Portland Cement Association has asked for our suggestions, our co-operation, and our actitve participation in the program. It has been pointed out that local ready mix dealers because of their interests, contacts, and knowledge of local conditions, particularly if they are active in civic affairs, should be most helpful in aiding P.C.A. representatives in their street paving promotional efforts.

In the three pilot cities, a tentative schedule of cooperative advertising has been worked out; a detailed cost analysis of concrete and competitive pavement types is being made; and a brochure presentation for city officials is being prepared. News releases, based on information and photographs supplied by local dealers, are being sent to newspapers. These releases feature ready mix operations on paving jobs.

Producers are being encouraged to take an active part in local service clubs, zoning boards, planning commissions, port authorities, and the like; producers are being urged to take every opportunity for influencing decisions on paving type toward ready-mixed concrete; operators and P.C.A. representatives are pooling their efforts to have home builders specify ready-mixed concrete for streets to be built in new residential sub-divisions. The association is providing speakers, assembling material, arranging meetings, and in every possible way is backing up the efforts of the local producers.

In each pilot city, the importance of quality concrete is being stressed, as is the need for quality materials and the necessity of proper weighing, mixing, and delivery procedures. Producers are being told that on-time deliveries of quality concrete in sufficient quantities must be provided. The possibility of pooling delivery equipment

(Continued on page 177)

Simplex Hydraulic Pullers Make Concrete Prestressing A Real Profit Opportunity for You!

Standard Units Available from 10 to 100 Ton Capacity

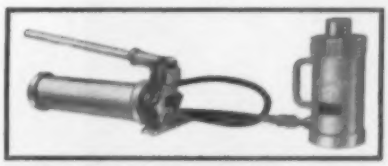
Prestressing concrete structural units becomes a quick, easy task with Simplex hydraulic equipment. Thanks to the "center-hole" pulling feature of Simplex units; wires, rods and cables can be tensioned without torque, "off-center" pressures or complicated back-up devices. Eliminating these factors accounts for a 75% increase in ease and efficiency.

Simplex "Re-Mo-Trol" units consist of a "center-hole" pulling hydraulic ram connected by high pressure hose to a hand, air, electric or gasoline operated hydraulic pump. This powerful combination permits uniform stressing with maximum operator safety and speed. Once the ram is in place, the pump can be actuated from any nearby convenient location.

"Re-Mo-Trol" hydraulic pullers are ideally suited for prestressing operations. Whether you operate full-time permanent pre-tensioning beds or have only an occasional call for stressed structural units, Simplex offers a model for your express needs. These versatile Simplex units are available in standard capacities from 10 to 100 tons, and can be used directly on cables, rods or wires for heavy tonnage high-pressure tensioning or for pushing or pulling against a holding bracket in multiple bed stressing operations.

The standard Simplex units provide a range of capacities sufficient for most applications. However, custom-built units are available up to 600 ton capacity.

For detailed data on the selection and application of "Re-Mo-Trol" Pullers for prestressing concrete and other construction jobs, write for your copy of our new bulletin: "Hydraulic 56".



SIMPLEX "RE-MO-TROL"—Remote-Controlled Unit has ram connected to hydraulic pump by high pressure hose for safe, convenient use in tight spots and dangerous locations. A pressure gauge may be installed for checking tensioning pressure.

SIMPLEX "JENNY" is a hydraulically operated center-hole puller which also serves as a press or heavy duty jack. It is a self-contained unit available in capacities from 30 to 100 tons.

TEMPLETON, KENLY & CO.

2563 Gardner Road ○ Broadview, Illinois

Enter 1106 on Reader Card

Shovel-loading big-chunk rock into Dumptor — square body opening provides 64 square feet of target for easy loading over the side, or either end. It's the heavy-duty hauling unit with a ton of strength for every ton of payload capacity!

Plenty of power on the haul — (check high ratio of H.P.-to-loaded-weight in Dumptor story on next page). Dumptor also travels at same speeds in either direction for fast, no-turn shuttle hauling.

One-second gravity-dump speeds haul cycles. Dumptor has no troublesome body hoist, no hoist maintenance. Gravity-dump never balks, and never wears out.

IN ROCK LIKE THIS

you need Dumptors

When you are loading 1½ to 2½ yards of rock at a single pass, hauling units need plenty of strength to last. With Koehring heavy-duty Dumptor, there's a ton of strength for every ton of payload capacity. *It's built for rock.* Sides and ends of all-welded 6-yard body are heavily rib-reinforced. Double-plate bottom, lined with multiple steel beams, cushions the shocks of rock loading. Bolted or free-swinging kick-out pan adds another ½" steel plate to Dumptor bottom for extra strength.

There's plenty of strength, too, in the heavily-trussed chassis to take constant pounding of heavy loading and rough, off-road hauling. What's more, Dumptor has no leaf springs — just one big snubber-type chassis spring on the steering axle — none on the drive axle. Big drive tires eliminate the need for more springs, absorb loading and hauling shocks — save spring maintenance.

Even with all this heavy-duty strength, Koehring Dumptor® still has more than 6 H.P. for every ton of loaded weight. It accelerates fast, pulls through soft ground with less shifting, climbs 24% grades fully loaded. If you have a tough hauling problem, see your Koehring distributor about this heavy-duty 6-yard Dumptor. Why not call him now?

KOEHRING COMPANY

MILWAUKEE 16 WISCONSIN

CX648

Subsidiaries: JOHNSON PARSONS KWIK-MIX

Accurate water weigh-batching

assures close quality control in production of ready-mix concrete. When water is batched by weight, accuracy is not affected by changes in water temperature — regardless of whether cold water is used in summer, or heated to 180°F. in winter. Reservoir type batchers also maintain top-speed weighing, even where low water pressure is encountered. To get this speed and accuracy in your plant, specify a Johnson water batcher.

2 sizes: 120-gallon (1,000 pounds) for batches up to 3 yards, and 240-gallon (2,000 pounds) for batches up to 6 yds. Semi- or full-automatic.

2 WAYS to increase batching efficiency

Central cement-feed

prevents "gumming", reduces dusting, and pre-shrinks materials. You get this unique advantage with Johnson Concentric batcher, because the aggregates are arranged concentrically around the cement. All ingredients are intermingled as they flow through discharge.

It's two separate batchers combined in one unit. Aggregates are weighed on accumulative dial scale, or on individual beam scales. Cement is weighed separately on an *independent scale* in a centrally-located, sealed hopper. Dual discharge available. Sizes: 2 to 8 yds., arranged for 2 to 8 aggregates, plus 1 to 4 types of cement. Manual, semi- or full-automatic operation.

Want more facts?

mail to: C. S. JOHNSON CO., Champaign, Ill. (Koehring Subsidiary)

Send us literature on ☐ Water batchers ☐ Concentric batchers

NAME _____ TITLE _____

COMPANY _____

STREET _____

CITY _____ STATE _____

Enter 1117 on Reader Card

Union Tufwire provides mighty tendons of strength in

NATION'S LONGEST PRESTRESSED CONCRETE GIRDERS

146 feet long, the precast, prestressed concrete girders framing the roof of the new Parkview High School Gymnasium (Springfield, Mo.) are believed to be the longest ever constructed in this country.

12 Tufwire high tensile wires (0.250" dia.) form the prestressing strands. There are 16 strands in each girder. These Tufwire high tensile wires have an ultimate strength of 240,000 psi, making possible the high compressive stress built into the concrete by prestressing.

One of the giant girders approaches the top of the columns. While it awaits connection to the columns, the girder is supported by a 132-pound steel rail inserted through holes at the sides of the columns.

The giant girders are supported on unique twin concrete columns, and tied to them by prestressed rigid joints. The girders were cast and prestressed on the concrete floor of the gymnasium, and hoisted atop the columns by the same hydraulic jacks used for prestressing. Then strands providing the continuity of the joint between girder and columns were placed and stressed.

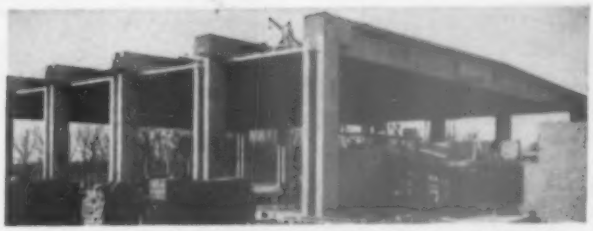
This new building impressively points up the advantages of prestressed concrete construction: longer spans, greater strength-to-weight ratio, lighter foundations and substantial savings in building time and costs.

Union Wire Rope Corporation's advances in developing better high tensile wire and strand helped open the way for the present trend to prestressed construction. Today we're supplying Tufwire Stress-Relieved Wire and strand for projects ranging from the world's longest highway bridge (over Lake Pontchartrain, Louisiana) and the nation's biggest highway-building program . . . right on down to light poles and farmers' fence posts. The jobs don't come too big or too small!

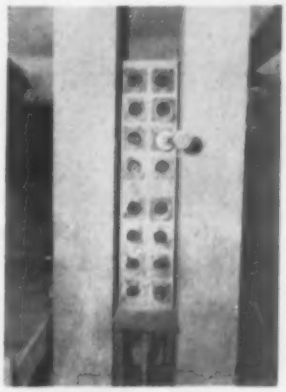
CERTAIN SUPPLY — PROMPT DELIVERY

That's what you're assured when you specify Union Tufwire wire and strand. The research and production facilities of Union Wire Rope Corporation have been geared to the seven-league strides of prestressed construction since the trend began shaping up a decade ago. Our expanding plant capacity and Mid-America location mean prompt service for your order.

Have a problem? Whether you're an on-site contractor or a permanent casting-bed operator—or want to explore the advantages of prestressed concrete in your field—get in touch with our engineering department and research laboratories. We'll gladly lend a lift with any prestressing problem.



Precast channel roof slabs rest on the lower flanges of the girders, providing a smooth ceiling inside the building. You can see in this picture how continuity stressing rigidly holds columns and girders together.



The 16 prestressing strands are shown in position in the girder ready for post tensioning. The girders are seven feet deep at center, tapering to 5.5 feet deep at each end.

Holes formed by rubber cores in the end block receive the Tufwire strands with which the girder is joined to the top of the column by post tensioning.

Tufwire in coils ready for placing in the girder after removal of forms.

Get this booklet now!

It's a comprehensive handbook that gives you important facts about prestressed concrete. Plus complete specifications and data on *Tufwire* as used in both pretensioned and post-tensioned prestressing. No charge.

union Wire Rope corporation

Specialists in high-carbon wire, wire rope, braided wire fabric, stress-relieved wire and strand.

2302 Manchester Avenue • Kansas City 26, Missouri

Enter 1026 on Reader Card

Another BESSER BOOSTER*

*This is the 130th of a series of ads featuring leaders in the Concrete Products industry who are stepping up block production with Besser Vibrapac machines.

Profits Through Vibrapac Agreement Prompted this New England Plant to Order 2 Additional Vibrapacs!

When the Duracrete Block Company of Manchester, New Hampshire decided to expand their block making activities in 1949, they selected a Besser Vibrapac under the Vibrapac Agreement Plan. The operation of this first machine was so successful, the company has since ordered two additional Vibrapacs, also under the Vibrapac Agreement Plan.

Substantial profits were realized without any material increase in plant investment. The production of premium block, plus an aggressive merchandising campaign, greatly increased the acceptance of quality concrete masonry in this area.

Yes, Vibrapacs are profit-making machines because they produce quality block and operate continuously, day after day, without "down-time". In the words of D. V. Donati, President of the Duracrete Company, "There are none better than the Vibrapac. It's the finest block machine made."

Write for literature

• D. V. Donati, President of the Duracrete Block Company and Arthur Donati, Foreman, writing up an order for Vibrapac Block.

• One of the three Vibrapacs, a front pallet feed model. Fully automatic. Off-bearer merely guides the Besser Power Hoist.

• This beautiful home was built with Bes-Stone Split Block produced in the Duracrete plant.

• Yard scene at Duracrete. In addition to conventional units, they also produce manhole and catch basin block, Bes-Stone Split Block, Soffit Floor Units, chimney block, etc.

BESSER COMPANY • Box 135, Alpena, Mich., U.S.A.

Complete Equipment for Concrete Block Plants

A 8895-1PEC

First in concrete block machines!

READY MIX ADVERTISING

(Continued from page 171)

when necessary to give top service is being discussed. Local producers and P.C.A. representatives are working out practical plans of inspection and quality control.

In the promotion of ready-mixed concrete for use in city street paving, the Portland Cement Association has pledged its cooperation and sought our support. Producers everywhere should start their planning now so that they will be ready when local efforts get underway. Area ready-mixed concrete associations should organize promotional committees to help their members get ready. The new Public Relations Committee of the National Ready Mixed Concrete Association, under the able leadership of Ralph Anderson, Columbus, Ohio, may make city street paving promotion one of its principal activities. The new promotional program of the Portland Cement Association should have the complete, organized support of all ready mixed concrete suppliers.

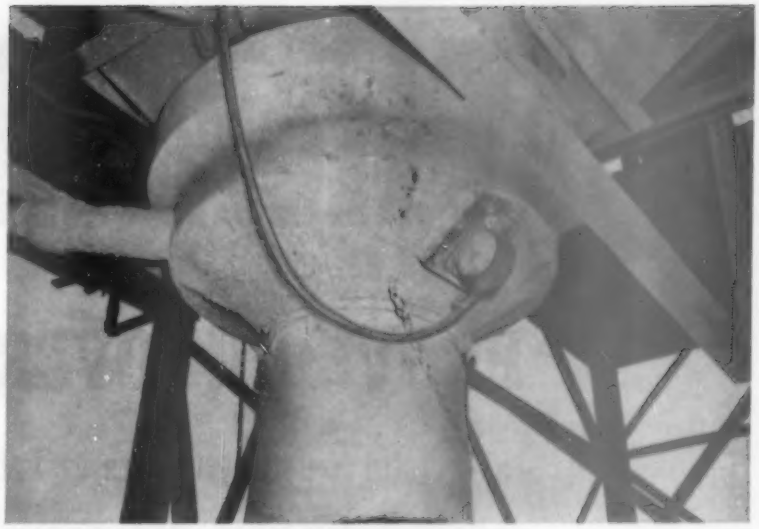
Promotion and Advertising

In spite of the necessity of promotional efforts in merchandising concrete, a good many producers say that they don't have a promotional or advertising program. Many ready-mixed concrete companies feel that their advertising programs are hardly worth mentioning. Probably only an insignificant part of the cost dollar is spent on straight advertising. As long as the big part of concrete sales volume goes to the contractor trade, producers may feel that using the regular mediums of advertising is an unnecessary expense.

A producer may not employ an advertising agency or give any consideration to a radio program; he may not advertise in the local newspapers or even in the yellow pages of the telephone book. However, he is probably insisting upon good appearing trucks on the streets with the name of his firm advertised in large attractive print in several conspicuous positions. He may be giving reasonably priced Christmas gifts to his more important customers. He may be showing industry films now and then at meetings of architects, engineers, contractors, and finishers. He probably sees to it that complaints on service or quality are given prompt, careful attention. He may even be writing a number of personal letters to people congratulating them on a promotion, civic honor, or marriage of a son or daughter.

Such a producer is merchandising minded even if he doesn't have an or-

(Continued on page 180)



Typical AiroViber vibrator installation to keep bulk materials moving.

Low Cost AiroViber Speeds Movement of Bulk Materials by Trouble-Free Vibration

Operates quietly, effectively in wide range of temperatures; requires no maintenance

TROUBLE-FREE external vibration for effective movement of bulk materials in loading, unloading, moving, packaging, processing, grading or separating is now available to you in the low cost AiroViber vibrator. Simple design of AiroViber involves only one moving part and ends necessity of down time for periodic maintenance or lubrication. It also includes a noise reducing design that eliminates annoyance of sounds often experienced in ordinary types of vibrators.

AiroViber's one-moving-part construction assures you of continual operation in wide range of temperatures. It will also start and operate at all times and is not affected by humidity.

AiroViber's simple design assures trouble-free vibration.

How It Operates

Vibration necessary to keep materials from jamming, arching or hanging up in bins, hoppers, chutes, feeders . . . is created by the AiroViber vibrator through action of a single heavy steel ball blown by compressed air around a hardened and ground steel track in the housing. A strong centrifugal force developed by the weight of the ball is then transmitted by the vibrator through its mounting into the object being vibrated.

Installation Is Easy

Because of its simplified design, AiroViber may be installed quickly and easily. And, since no upkeep is required, you can install this vibrator in hard-to-get-at locations . . . fully confident that it will operate for a long time without lubrication or maintenance. Special line oilers or air filters are not needed . . . merely hook up an air hose large enough to deliver air specified for the unit you select.

Find out how AiroViber vibrators can save you money and time in moving bulk materials. For free illustrated literature and address of nearest distributor, write Viber Company, 726 South Flower St., Burbank, Calif., Dept. 11C11.

VIBER

VIBRATORS SINCE 1931

Enter 1091 on Reader Card

The Only 100

PROVED IN OVER 100 MILLION

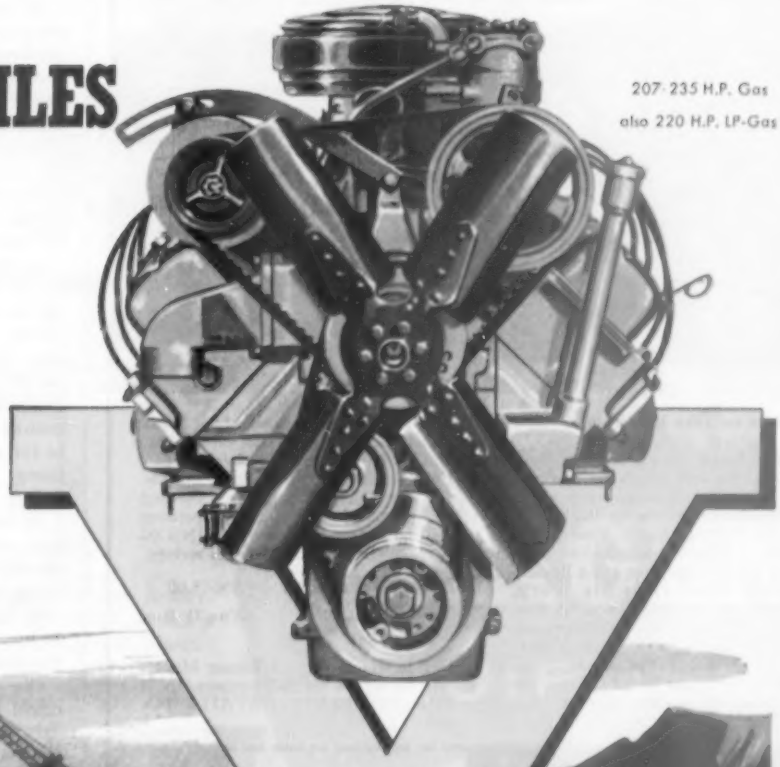
- No beefed up passenger car engine matches Reo's bigger payload power.
- No "laboratory tested" engine matches Reo's proved performance record.
- No other truck manufacturer matches Reo's 100,000 mile warranty.

THE 100 MILLION MILE ENGINE Designed, Engineered and Built by REO

Million Mile V-8

TRUCK MILES

207-235 H.P. Gas
also 220 H.P. LP-Gas



BIG

Tested by Truckers, and Backed by REO'S 100,000 MILE WARRANTY

Enter 1118 on Reader Card

Make More Money With
RINSON FORK LIFT TRUCKS
- - - Here's 7 Reasons Why

A RINSON IS READY TO ROLL . . . Its movable muscles are ready to use wherever needed. Note the built in tow bar, foldup forks, tie-in braking and lights. Distance is no problem; you deliver quickly with Rinson Fork-Lift Trucks.

1—**You Can Take It With You.** Tow at highway speeds to the job.
2—**Spot Load Anywhere.** Climb curbs, traverse rough terrain. Put it where the customer wants it.
3—**Save Labor Costs.** Saves 5 to 8 times the man hours. Your trucks have less idle time; deliver more pay loads with 1 man and a Rinson.
4—**Little Truck Does Big Work.** Maneuvers in tight spaces. A Rinson NF-4 will lift 4,000 pounds, carry and elevate loads to 9 feet.
5—**Low-Cost Maintenance.** Uses standard Ford truck parts. No waiting for factory delivery. Just call your Ford dealer.
6—**Get More Business.** Spot loads where needed with no extra labor. Customers like Rinson deliveries.
7—**Increase Profits.** A Rinson quickly earns more than it costs. Needed all around your plant. Competition compels you to own a RINSON now. It saves time, makes money.

Prices Start As Low As $3665.00

Test RINSON . . . You'll Buy RINSON!

Decide which of the 5 Rinson Models will make you the most money! ASK FOR COMPLETE DETAILS TODAY!

RINSON
FORK LIFT TRUCKS

C. Rinkin & H. Olsen, Rinson Fork Lift Trucks
725 E. Huntington Drive, Monrovia 2, Calif.

Send free illustrated brochure on RINSON Fork Lift Trucks.

NAME..... TITLE.....
COMPANY.....
ADDRESS.....
CITY..... STATE.....

Enter 1108 on Reader Card

READY MIX ADVERTISING

(Continued from page 177)

ganized advertising program. As this producer faces increased competition in his local market, he most likely will find that it will pay to include a program of promotion and advertising in his selling efforts.

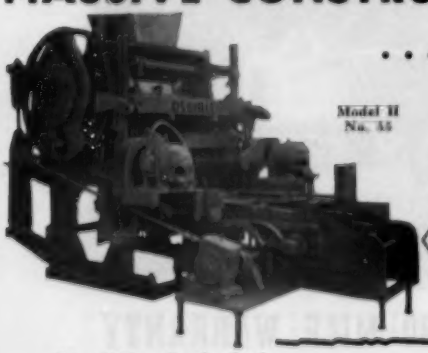
At low cost, a producer can place attractive signs on company trucks, at the firm's yard, and on important jobs. With the help of the promotional aids prepared by the Portland Cement Association, a producer can easily plan advertisements for the newspaper and the yellow pages of the telephone book. Using the P.C.A. spot announcements, he has all the basic material necessary for radio commercials. The producer will soon find that through advertising he is able to get his sales message across cheaper to a greater number of people. As he checks sales results he may find that while he is reaching people with his message, he may not be reaching customers or prospective customers. He may find it pays to go in for some form of direct mail advertising. Again, he can resort to the P.C.A. promotional package for help.

In evaluating newspaper advertising, an urban ready mix producer should consider the trend to suburban living as reflected by county and township construction permit figures. In going after new home construction business, including private swimming pools and other recreational areas, he might better advertise in several suburban papers that have an area coverage rather than spend all of his advertising dollars with his city's principal newspaper that appeals primarily to urban readers.

Newspaper advertising is primarily for the consumer trade. Surveys indicate that ready mix producers' ads will get the greatest reader response in the pictorial section, the sport page, a

(Continued on page 182)

MASSIVE CONSTRUCTION *plus* SMOOTH OPERATION
. . . the OSWALT BLOCK MACHINE



Model H
No. 55

is specially designed and built for heavy-duty, high speed and relaxed operation . . . gives top production without sacrifice of quality.

Exclusive profit-promoting OSWALT features include

- **Shock-Free Block Ejector and Front End Pallet Feeder**
- **Simplified Height and Density Control**
- **Improved Vibration and Speed-Up**

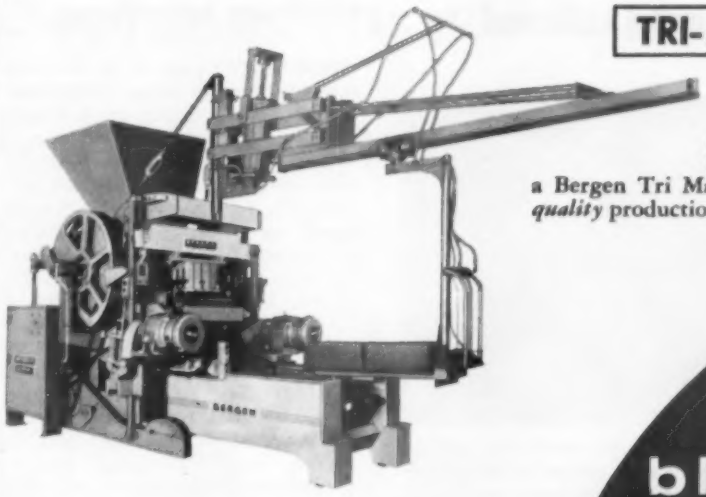
This shows type of installation at Cement Block Industries plant in Miami, Florida.

Write for new illustrated brochure of Model H OSWALT Block Machine.

OSWALT ENGINEERING SERVICE CORP.
1335 Circle Ave., Forest Park, Ill.
Phones: ESterbrook 8-4664 (Chicago), FOrest 6-2798 (Suburban)

Enter 1107 on Reader Card

TRI-MATIC BLOCK MACHINE



a *truly* HIGH PRODUCTION machine! Rugged, Powerful, Dependable . . . a Bergen Tri Matic is your assurance of maximum *top quality* production, for many years.

MORE

block plants are buying

MORE

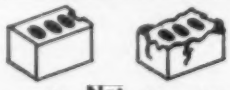
BERGEN

EQUIPMENT

Every day!

LIGHT-WEIGHT HOIST

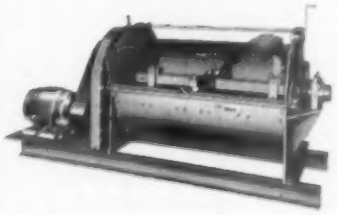
The low-headroom feature (requires only 12 ft.) plus the new powerful magnetic plate makes the BERGEN Hoist a real high-production asset to any block plant.



This ⬅ Not this ⬅ with this ➡

ZeroMatic HEIGHT & DENSITY CONTROL

The BERGEN ZERO-MATIC automatically controls aggregate volume to the mold and the vibration period under pressure. It maintains precise *Quality Control* on the Density, Texture, and Height of the blocks produced on your block machine.



BATCH MIXER

Unusually heavy construction — you get longer, trouble-free life from genuine Ni-Hard liners and blades, as well as double life from the exclusive reversible 130-tooth main gear. All combine to assure superior mixing for many years.

Phone "Collect" or write for complete details and prices of these or any other Bergen products.

BERGEN

MACHINE & TOOL CO., INC.

NUTLEY, NEW JERSEY

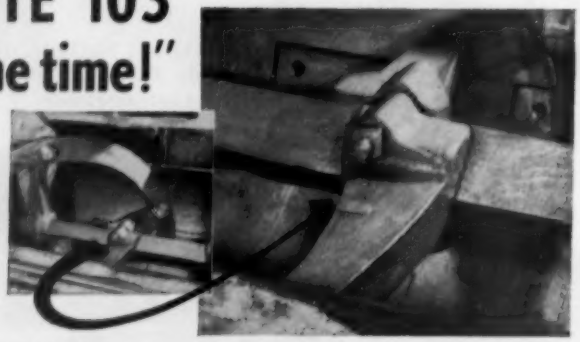
Cable Address: "BERGENCO" (Nutley, N. J.)

Enter 1119 on Reader Card

"Cleaned with a whisk broom, putty knife and . . .

EDI-COTE 103 in half the time!"

says owner* of this 17 year old mixer that looks like new.



EDI-COTE #103 is a revolutionary new release agent that prevents concrete from bonding to mixer blades and parts. EDI-COTE #103 eliminates the use of air guns and sledge hammers in the daily clean-up. EDI-COTE #103 creates a non-hardening film which prevents the forming of a bond between concrete and metal. It adheres rigidly and will not dissipate due to chemical action or abrasion. One application of EDI-COTE #103 will remain effective throughout the longest working day. EDI-COTE #103 can be applied with brush or spray. Shipped in 55 gallon drums. 5 gallon cans available for trial shipments only. Order EDI-COTE # 103 today!

* Frank Erdman & Son, Milwaukee, Wisconsin

Edick LABORATORIES
427 West National Avenue
MILWAUKEE 4, WISCONSIN

For further information on EDI-COTE #103, see your NCMA Technical Bulletin No. 2, Attachment No. 1, March 3, 1955.

Enter 1101 on Reader Card

Add a New Profit-Maker
increase your volume

PRODUCE CONCRETE JOISTS, LINTELS AND FENCE POSTS with the KIRK & BLUM HEAVY DUTY VIBRATING TABLE

Your experience in the building trade should make it easy to build up a profitable business in this new line. The products are simple to make, have unusual strength, are termite proof. The KIRK & BLUM Type "S" Heavy Duty Vibrating Table is capable of multi-production of concrete joists, allowing a fine profit-margin. Easily produced by unskilled operators. For complete details and prices, write to The Kirk & Blum Mfg. Co., 3210 Forrer Street, Cincinnati 9, Ohio.

Only Small Investment Required!
The Kirk & Blum Vibrating Table requires a small initial cost, lets you make an entirely new line of 8", 10" and 12" joists in 20 and 24 ft. lengths.

KIRK & BLUM

Manufacturers of steel forms of all types . . . Curb, Gutter, Sewer, Road

Enter 1102 on Reader Card

READY MIX ADVERTISING

(Continued from page 180)

special building page, or in the classified advertisement section under building supplies. In certain markets some producers may find it profitable to advertise in the do-it-yourself section. Ads should be run regularly, not spasmodically. Living up to this well established rule of advertising should not prevent consideration of the seasonal nature of the ready mix business. The number and size of ads should be increased just prior to the active building season and during it. Similarly, during late fall and winter months (or in other slow periods) a producer should cut back both on the size and frequency of his newspaper ads.

New York ready-mixed concrete producers and operators in other large metropolitan areas where chain markets publish store books might consider advertising space in one or several of these publications. A number of building products are being successfully advertised through these new channels. Producers in these several populous centers, through the medium of chain market books, can get widespread economical promotion of their concrete and other products.

A ready mix producer who is considering radio as an advertising medium might take on the sponsorship of a daily early morning weather report featuring possible rainfalls, wind conditions, and temperature changes. Such a program can be slanted to be most helpful to members of the construction industry.

A producer's funds available for radio advertising may be too limited to take on the sponsorship of a weather report or any other type of program. An appropriate program might be shared with other sponsors. Last year a local appliance dealer and our company co-sponsored, in the Toledo area, broadcasting of Notre Dame football games. The trouble with Northern producers sponsoring college football games is that, no matter how popular the games might be, there can be no expectation of increased business volume because of the fall (declining business) season shortly to be followed by winter.

Participation in a weather report program during busy building months would seem to have a wider appeal to building and paving contractors, the do-it-yourself trade, and to those planning home or farm improvements. In addition to the close connection between weather and construction, an early morning show is considered to be the best time on radio.

NOTE: On a contract arrangement with the Bell Telephone Company, our

(Continued on page 186)

Designed for yards large and small..

Clark's new SUPER YARDLIFT® LINE !

Here's a new line of fork lift trucks that takes the "bugs" out of yard work. High underclearance eliminates the problem of rough terrain, while 50-50 weight distribution takes the worry out of mud operations. Add to this, more power, shorter turning radius, a hydratork transmission and dual drive tires*; and you've got the most advanced yard trucks ever built. And they're trucks designed for simplified maintenance, with new maneuvering ease and precise finger tip controls. Write today for your copy of the new specification booklets, or contact your local Clark dealer. You'll find him listed in the yellow pages under "Trucks, Industrial." *Optional*

Industrial Truck Division
CLARK EQUIPMENT COMPANY
Battle Creek 60, Michigan
A BETTER BUY WITH LOCAL SUPPLY—*Genuine Clark Parts*

Enter 1066 on Reader Card

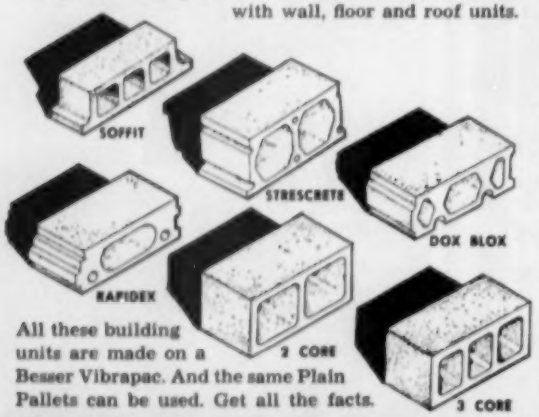
Go After the Entire Market!

Block for WALLS

Block for FLOORS

Block for ROOFS

Fire-safe walls? Of course! But floors and roofs should be fire-safe, too. Walls are full of openings (windows, doors, etc.), while floors and roofs are relatively solid. Actually, TWICE the volume of block is required for floors and roofs than is required for walls. So why not go after this profitable market? Supply customers with wall, floor and roof units.



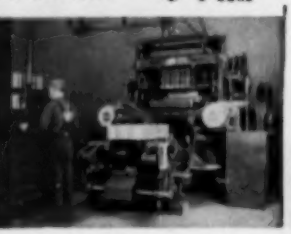
All these building units are made on a Besser Vibrapac. And the same Plain Pallets can be used. Get all the facts.

Write for Bulletin

BESSER COMPANY

ALPENA, MICHIGAN, U. S. A.

Complete Equipment for Concrete Block Plants



Enter 1121 on Reader Card

POSITIVE QUALITY CONTROL with NEPTUNE WATER METERS

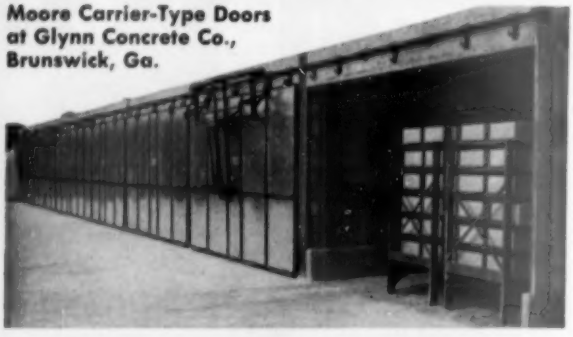
Simplest, surest way to get consistently better ready-mix batches is *accurately metered* water . . . with a dependable, long life Neptune water meter. Easy to read, saves space, speeds loading, and reduces structural requirements. Your choice of two types: Auto-Stop meter which automatically shuts off the water at exactly the right amount, or manually controlled round-dial meter. Write today for full details.

NEPTUNE METER COMPANY, 19 West 50th St., New York 20, N. Y.

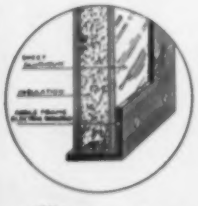
Branch Offices: ATLANTA • BOSTON • CHICAGO • DALLAS • DENVER • LOS ANGELES • LOUISVILLE • NO. KANSAS CITY, MO. • PORTLAND, ORE. • SAN FRANCISCO

Enter 1122 on Reader Card

Moore Carrier-Type Doors at Glynn Concrete Co., Brunswick, Ga.



Moore Metal-Insulated Kiln Doors Save Fuel—Reduce Curing Time



Keep heat where it belongs—inside the kiln—with Moore Aluminum-Insulated Doors. They improve curing conditions — save steam—last longer.

Send us dimensions of present door openings for quotation.

MOORE DRY KILN COMPANY

Oldest and Largest Manufacturers of Lumber and Veneer Dryers

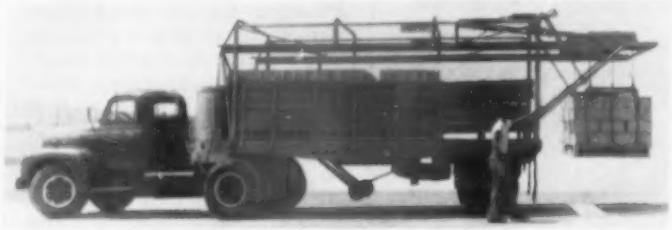
JACKSONVILLE, FLORIDA · BRAMPTON, ONT. CANADA · VANCOUVER, B.C. CANADA · NORTH PORTLAND, OREGON

Enter 1123 on Reader Card

HYDRA - LIFT

Loader . . . Unloader

(Patent 2,751,095—other patents pending)



Available for trailers

Useable with stake sides

Easily installed by purchaser

HARRY L. LEHMAN & SON, MYERSTOWN, PENNSYLVANIA
Building Supplies Dealer, now cuts costs by increasing deliveries with HYDRA-LIFT mounted on this trailer.

Phone, Wire or Write for Complete Details

HAVERSTICK BROS.
211 STONE MILL ROAD
Lancaster, Pennsylvania
Phone 2-5722

DEALER INQUIRIES INVITED

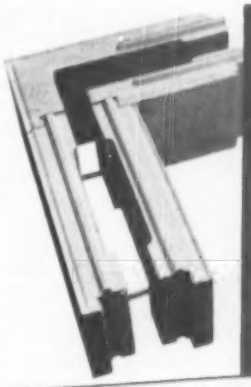
Enter 1083 on Reader Card

Have to share this copy of

ROCK PRODUCTS?

Enter your own subscription

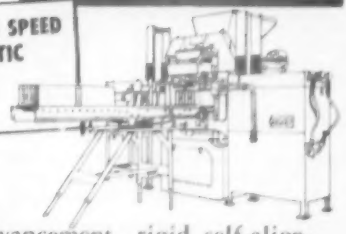
ORDER TODAY!



NOW! PRESTO BLOCK

with True Air Cavity, Moisture, Sound and Climatic Insulation Built-in . . .

PRODUCED BY HIGH SPEED . . . FULLY AUTOMATIC PRESTO BLOCK MACHINES!



Concrete masonry's most revolutionary advancement...rigid, self-aligning, easy-to-lay-up . . . enthusiastically endorsed by the building industry!

GET ALL THE DETAILS AND FRANCHISE INFORMATION TODAY! WIRE, WRITE OR PHONE:

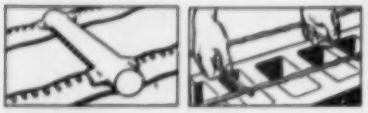
© 1956 Presto Brick Mach. Corp.

PRESTO BRICK MACHINE CORPORATION
Empire State Bldg., New York, N. Y. • Pennsylvania 6-1353

Enter 1082 on Reader Card

For
STRONGER WALLS
USE WAL-LOK IT BONDS BETTER
Mortar Joint Reinforcing

THE WAL-LOK WAY



When a mason uses reinforcing in a masonry wall, he lays the reinforcing right on the last course. With WAL-LOK, Cross Rods are welded across the Side Bars. The mason puts WAL-LOK on the wall with the Cross Rods DOWN.

The Cross Rods hold the Side Bars up away from the blocks and the mortar completely surrounds each Side Bar. With WAL-LOK, the mortar grips all the way around!

All WAL-LOK is also deformed and knurled for a positive bond the full length. All this still permits a quarter inch mortar joint.

THE WRONG WAY

With ordinary reinforcing, where all the wires are butt-welded in one plane, the Side Bars rest right on the blocks. The mason puts on his mortar. Steel doesn't float, so the mortar can't get under the Side Bars and the mortar bonds only to the top and sides.

WHY EXPECT MORTAR TO DO SOMETHING YOU CAN'T DO?

When you try to hang onto a rod, you don't hold it with your finger tips. You grip it in your fist with your fingers wrapped all the way around.

Why gamble—on cracked walls or wall failures. WAL-LOK costs so little yet adds so much to the strength and value of the structure.

WRITE TODAY for your copy of WAL-LOK's new folder showing sizes, specifications and test results.

WAL-LOK
ADRIAN PEERLESS, INC.
1401 E. Michigan St.
Adrian, Michigan

Enter 1112 on Reader Card

READY MIX ADVERTISING

(Continued from page 182)

firm receives weather reports by teletype direct from the U.S. Weather Bureau Station located at the Toledo Airport. Comprehensive weather reports are received daily at 5:35 a.m., 7:35 a.m., 10:00 a.m., and 4:00 p.m. Up-to-the-minute weather information reflecting any changes from previous predictions are sent out hourly. This information is promptly relayed to Toledo contractors through mixer truck radios and telephone inquiries. By their many telephone inquiries, local contractors have clearly shown that we are offering a greatly appreciated service to the building industry.

Other than personal calls, direct mail advertising seems to be the best way to reach the contractor trade. A producer can use the envelope stuffers and self mailers that P.C.A. advertising men have prepared, or he can have material prepared locally which he feels better fits his sales problems. A producer may wish to undertake a direct mail advertising campaign based on the issuance of monthly bulletins.

Many producers, including Allen's, Inc. of Wichita, Kan., have periodically issued service bulletins that are intended to be helpful to users of concrete. Some of these bulletins had such titles as Concrete Facts; Placing Concrete in the Wind, Sun, and Sand; Concrete Strength; Cold Weather Concreting; Concrete Floors; and Placing Hot Weather Concrete.

A number of leading cement companies issue monthly service bulletins that contain much thought provoking material on all aspects of concrete construction which alert producers are passing on to their customers by some form of direct mail advertising. Through the offices of the Portland Cement Association, the National Ready Mixed Concrete Association, and his principal cement suppliers, any producer can quickly accumulate a wealth of information to be used in service bulletins or in some other way made available to contractor customers. Several ready mix companies send a little pamphlet called "Job Helps" (or some other appropriate title) along with a delivery ticket on concrete sales to private individuals.

The future of our industry rests upon the ability of the ready-mixed concrete company and job personnel to produce "Quality Concrete in Place". Our own people and our customers' employes must have the necessary "know-how". Each producer has a prime responsibility to get the "know-how" and to pass it on to those who use his concrete. A better informed

(Continued on page 188)

COMMENT
from the BUTLER ENGINEER

Of Wheelbarrow Batching and Non-existent Ready Mix

Planning for the Road Show put my mind in a reminiscent gear . . . the days when batching was done by piling materials in long windrows: so many wheelbarrows of sand, so many of stone plus a couple of bags of cement — as an afterthought. This hash went to a steam-driven, steel-wheeled paver — remember? — The boys laid planks ahead for it to run on.

Then came wooden aggregate bins that discharged (still volumetrically) to mule drawn wagons. Bins were carpentered on the job.

The founder of this company, (Mr. B for short) was then a paving contractor. He developed a bin gate that had a unique characteristic: it worked. Then he designed a batcher and a steel bin . . . Mr. B paved in summer, built bins in winter—and pioneered in *weighing* batchers in both seasons.

Next development: bulk cement and great coyness by the engineers to accept it. *So Mr. B and Company developed the interlocked batcher.* Supervisory opposition said, "OK—and our blessing." Pretty important, wasn't it!

What about Ready Mixed Concrete? Man! In those days it was as non-existent as the babies to be born in 1977. Maybe that industry owes a tip-of-the-hat to Mr. B. I mean the Ready Mix industry.

When I think of the new Butler 0-1-0 one man operated, automatic Roadbuilders Plant and its calm command of 2 hungry 34E dual drum pavers . . . and of punched-card batching for Ready Mixed Concrete, I see how far we've come since my whiskers were fuzz.

Want more history? Write to

The Butler Engineer

BUTLER BIN COMPANY
WAUKESHA, WISCONSIN

Enter 1113 on Reader Card

Barber-Greene Idlers provide extra years of low cost operation . . . the ultimate in belt protection.

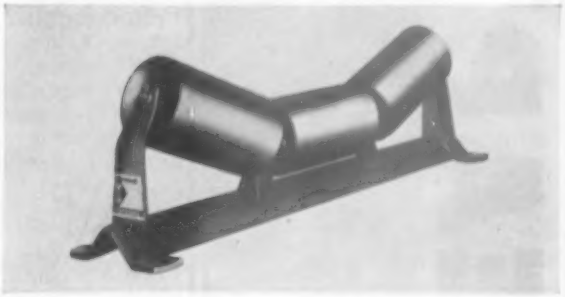
Barber-Greene Idlers . . . still rolling after twenty years

Installed 20 years ago, Barber-Greene Idlers are still rolling at this Material Service Corporation plant in Chicago.

There are no secrets behind the long-life records established by Barber-Greene Idlers. Advanced design plus top-quality materials, plus precision manufacture with the most modern production machines make the difference. The user benefits in lower maintenance costs, less down time, and longer idler life.

Barber-Greene advantages include virtually unbreakable jig-welded base frames, self-shedding base angles, interchangeable rolls made of heavy steel tubing, seamless steel grease reservoirs of ample capacity, and two-degree tilt to facilitate belt alignment.

Whether it's a ball bearing unit for normal service, or a roller bearing unit for the most rugged conditions, Barber-Greene has the idler that's right for any conveyor . . . right for any job.



Available in widths from 16" to 60", with 4", 5", or 6" rolls, the Barber-Greene line includes standard troughing carriers and return rolls, flat belt and picking table carriers, self-aligning carriers and return rolls, grain idlers, rubber impact carriers, and self-cleaning return rolls.

56-22-1PE

Write for literature on the complete Barber-Greene idler line.

Barber-Greene BG

AURORA, ILLINOIS, U.S.A.

CONVEYORS . . . LOADERS . . . DITCHERS . . . ASPHALT PAVING EQUIPMENT

Enter 1130 on Reader Card

LEAP® CONCRETE

MODERN, ECONOMICAL, PROFITABLE--

LEAP Concrete CANTILEVERS are LONGER!

Shown at Left: Prestressed Tee Joist roof with 25 FOOT CANTILEVER designed by L. L. Howard, Chief Engineer of Dura-Stress, Inc., a LEAP FRANCHISED prestressed products manufacturer.

If you want long, long, L-O-N-G SPANS, L-O-N-G-E-R CANTILEVERS write LEAP CONCRETE, INC.

FREE!

LEAP Concrete, Inc. P. O. Box 1053
Dept. K-14, Lakeland, Florida

Send information about LEAP Prestressed Products; Franchise ☐, Double Tee ☐, Joists ☐, Beams ☐, Piling ☐

NAME _____

ADDRESS _____

CITY _____ STATE _____

I am an: Architect ☐, Engineer ☐, Contractor ☐ We are interested in a LEAP FRANCHISE ☐

Enter 1075 on Reader Card

contractor becomes a better customer.

Through the issuance of periodic bulletins (in most cases, one sheet of paper will do) a producer can pass on to his customers basic information on such matters as:—placing quality concrete; prevention of cracking; scaling difficulties; proper use of calcium chloride; handling air entrained concrete; how to eliminate surface dusting; dangers of adding water; specifications problems; the points covered in the Allen's Inc. bulletins; and a host of other important subjects dealing with the handling of concrete.

Producers who believe in these direct mail contacts with customers, but who to date haven't had either the time or patience to get started on a program, now have the possibility of a new procedure to help their customers acquire the necessary "know-how". A new monthly magazine "Concrete Construction" began publication in September. This magazine is specifically intended for job users of concrete. A producer can make arrangements with the publisher for copies to be forwarded monthly as a personalized mailing piece to the homes and offices of customers and prospective customers.

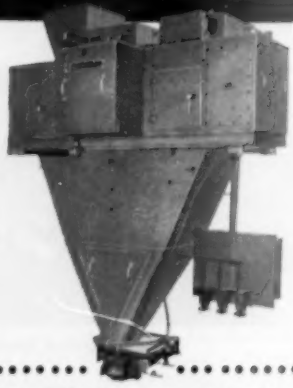
In merchandising concrete, it is a good rule to discreetly "shout from the house tops" any developments that focus favorable attention on your ready-mixed concrete company. Let the community in which you operate know that you are using the most modern, most dependable delivery equipment; you are controlling deliveries by two-way radio; you produce better concrete through central mixing plant controls; you employ the services of a testing laboratory in a sincere effort to improve concrete quality; you sell air-entrained concrete at no increase in cost; that calcium chloride and other admixtures are added through automatic dispensers; you are serving the community as a member of the planning commission or port authority; your company is a member of your State association and the National Ready Mixed Concrete Association; and you have been elected an officer of the state group or been made a director of the national association.

Unless you've got something to hide, don't hide your head under a basket. If anything unfavorable concerning you or your company develops, some competitor will almost certainly pass the story around. Don't worry over stories or rumors that competitors are bandying about. In the long run, it never pays to scoff at competitors. Speaking ill of others is no way to build good will for your company. If you can't say something good of a competitor, it is best for you to keep

Dry mix proportioning and sacking

in one simultaneous operation with a

Richardson



The Richardson Weighblender is ready made for the dry mix concrete industry! Inexpensively solving the weighing, blending, and sacking problems of a fast-moving production line, this unit blends any 3 of various ingredients in a mix (lime, too) at the rate of ten and more sacks per minute. Sack weights may be 25, 50, 80 or 100 lbs. . . . and, they're all *accurately* measured and proportioned.

After precisely weighing each ingredient in the mix, the scales discharge simultaneously, feeding the waiting sacks in a swirling motion for a uniform blend.

These added features complete the scale system and make it applicable to all dry mix operations:

- automatic sack holder when required
- sacks automatically counted and recorded
- bag conveying and sewing equipment available
- single unit E-50 bagging scales available where batching and mixing equipment are already at hand.

Send for Product Data Sheet #6041 for complete information.

Richardson

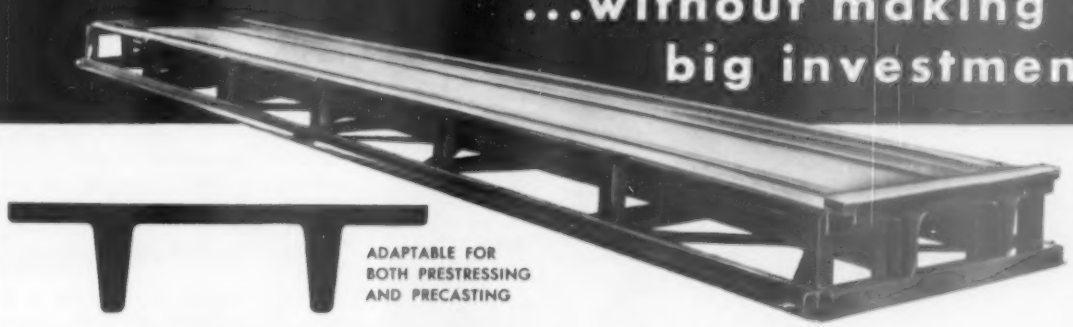
MATERIALS HANDLING BY WEIGHT SINCE 1901

RICHARDSON SCALE CO. • Clifton, N. J.

Branch offices in principal cities in the U.S. and abroad.

Enter 1076 on Reader Card

Get Into Profitable Precast Business ...without making a big investment



ADAPTABLE FOR BOTH PRESTRESSING AND PRECASTING

It's not necessary to invest money in concrete beds, expensive equipment and plant facilities to manufacture prestressed double tee slabs. A big sales potential is for span ranges of 20 to 40 feet, for which prestressing is not needed—for which precast members are most advantageous.

Low-cost, portable Atlas Cambered Steel Forms enable you to quickly and simply precast your slabs with lightweight concrete. A small investment puts you in a business with a tremendous market.

Get the story.

Consult Us Before Buying Forms for Prestressed or Precast Concrete

IRVINGTON FORM & TANK CORPORATION

Manufacturers of Forms for Prestressed and Precast Concrete

20 Vesey Street New York 7, N. Y.

Enter 1096 on Reader Card

SIDE-O-MATIC

Cleveland Builders Supply Company, a leader in the industry, now have 3 Side-O-Matics in their fleet

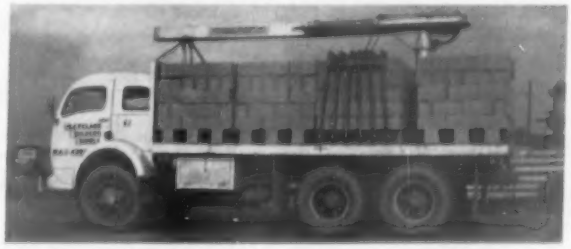


Photo shows cubes loaded by squeeze-type fork are no longer an unloading problem

PARTIAL LIST OF SATISFIED USERS:

Foster Builders Supply Company
Port Huron, Michigan

Alico Concrete Products Co., Inc.
Patchogue, L. I., New York—2 units

City Cement Blocks Co.
Bridgeport, Connecticut—3 units

The Ideal Builders Supply and Fuel Co.
Cleveland, Ohio—2 units

Apex Coal and Supply Co.
Cleveland, Ohio

Binkley and Ober, Inc.
East Petersburg, Pa.—2 units

The Michigan Silo Company
Peoria, Illinois—2 units

Joseph M. Ripley, Inc.
Jacksonville, Florida—3 units

Pick's Pack-Hauler
Blue Hill, Nebraska

Schenectady Cast Stone Co., Inc.
Schenectady, New York

Raymond W. Bartlett
West Creek, New Jersey

Concrete Masonry Corporation
Elyria, Ohio—4 units

Fizzano Brothers, Inc.
Crum Lynne, Pennsylvania

Maule Industries, Inc.
Miami, Florida—2 units

South Hammond Concrete Products Co.
Hammond, Indiana

Flower City Builders Supply Corp.
Rochester, New York

Nitterhouse Concrete Products
Chambersburg, Pennsylvania

Marquart Concrete Block Company
Waterloo, Iowa

The Plasticrete Corporation
New Haven, Connecticut—2 units

The Cleveland Builders Supply Co.
Cleveland, Ohio—3 units

Picone Brothers
Farmingdale, Long Island, New York

Putnam Mason Supplies, Inc.
Carmel, New York

Tait Block and Supply Company
Port Huron, Michigan

Daggett's Concrete Products
South Haven, Michigan

Fairlawn Supply and Coal Company
Akron, Ohio

Polyock Brothers
Zenda, Wisconsin

Atlas Concrete Products, Inc.
Flint, Michigan—2 units

Allen County Concrete Products
Lima, Ohio

Meakins, Inc.
Hollywood, Florida—4 units

Carl Krebs
Fort Thomas, Kentucky

Lima Cement Products Company
Lima, Ohio

Peoria Concrete Construction Co.
Peoria, Illinois

M. L. Dague Co.
Muncie, Indiana

Columbia Concrete Products Co.
Des Moines, Iowa

Iowa Concrete Block and Material Co.
Des Moines, Iowa

Bestone Incorporated
Chardon, Ohio

New Castle Duntile Company
New Castle, Pennsylvania

R. I. Lampus Co.
Springdale, Pennsylvania

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Cranston, Rhode Island

Bes-Block Concrete Products, Inc.
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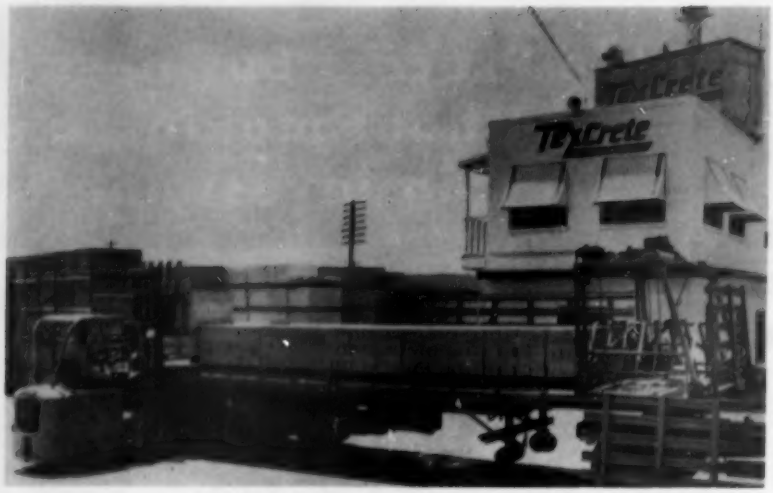

Block-handling equipment of Texcrete Co.

your mouth shut. Why give him some free advertising?

A producer's job is to promote the sale of quality concrete by his company. By adopting and living up to a set of sound merchandising fundamentals, he can best do this job.

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HAYES BROTHERS CONCRETE CO., Inc., New Iberia, La., has opened a new plant and office.

Mechanized Block Handling

TEXCRETE CO. OF FORT WORTH, a division of Texas Industries, Inc., has mechanized handling of brick, stone, concrete and haydite block by use of a Yale fork truck (left, in photo), a specially designed Hobbs trailer and a Superlite Unloader (right).

J. A. McKee, dispatcher, reports the fork truck can load the trailer with 1440, 8- x 8- x 16-in. block in about 10 min. The unloader, a product of Builders Equipment, Phoenix, Ariz., deposits the load in 20-25 min. The platform trailer is equipped with rails for the unloader to move on, and also has flush-construction stake pockets for side rails.

Cement Prices Raised

FOURTH-QUARTER PRICE INCREASES have been announced by several major cement producers, concentrated principally in the eastern and southeastern states, following the lead set by Lehigh Portland Cement Co., Allentown, Penn.

Prices went up 15¢ per bbl. at Lehigh plants in Alsen, N. Y., Union Bridge, Md., Fordwick, Va., Sandt's Eddy, Penn., Ormrod, Penn. and Fogelsville, Penn. Lone Star Cement Corp., New York, N.Y., raised prices 20¢ per bbl. at plants in New Orleans, La., and Norfolk, Va., and 15¢ in Hudson, N.Y., Lone Star, Va., and Nazareth, Penn. The New Orleans plant of Ideal Cement Co., Denver, Colo., has figured in a 20¢ raise, and at the Baton Rouge, La., plant, prices are up 15¢.

Increases of 15¢ per bbl. also were put into effect October 1 by the fol-

(Continued on page 192)

TO LOAD . . . UNLOAD

CONCRETE BLOCK . . . BRICK . . . CEMENT . . . STONE . . . ETC.

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Overall Clearance from truck bed	
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Inside Loading Area	
50"—Clears 6 rows, 8" block	59"—Clears 7 rows, 8" block
Track On Truck-bed	
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Inside Loading Area	
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Plain Pallet Machine with Front Pallet Return

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Electric driven hydraulic members permit extreme simplification with a marked reduction in operation and upkeep costs.

The amount of material, the time of agitation and vibration, the size of the block, the forward movement of finished blocks are all controlled electronically and hydraulically.

The KENTHREE automatically delivers three 8 inch blocks or equivalent of accurate dimension and uniform density each cycle with any aggregate.

The offbearer picks up two pallets of finished block from the automatic front pallet return and simultaneously by using a magnetic spade, drops two empty pallets into the machine, one of which moves into position at each cycle.

This advanced designing and operation gives new remarkable results with which you should be familiar.

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lowing companies: Alpha Portland Cement Co., Easton, Penn., at plants in Martin's Creek, Penn., and Catskill, N. Y.; Medusa Portland Cement Co., Cleveland, Ohio, at the York, Penn., plant; Universal Atlas Cement Co., New York, N. Y., at plants in Hudson, N. Y. and Northampton, Penn.; Penn-Dixie Cement Corp., New York, N. Y., plants at Bath, Nazareth and Penn-Allen, Penn.; North American Cement Corp., New York, N. Y., plants at Howes Cave, N.Y., Catskill, N.Y. and Security, Md.; Dragon Cement Co., Inc., New York, N.Y., plants at Thomaston, Me., and Northampton, Penn.; and American-Marietta Co., Chicago, Ill., the Martinsburg, W. Va. plant. American-Marietta scheduled a similar increase at its Birmingham and Roberta, Ala., plants.

Engineers Honored

SOUTHERN CALIFORNIA ROCK PRODUCTS ASSOCIATION and Southern California Ready Mixed Concrete Association entertained several hundred guests at dinner at the Statler Hotel, Los Angeles, Calif., September 26. The group included contractors, architects, designers, specification writers, and engineers from the state, counties and cities.

Stanton Walker, director of engineering for the National Ready Mixed Concrete Association, was guest speaker. Robert Mitchell, president of Consolidated Rock Products Co., Los Angeles, Calif., was master of ceremonies. Others at the speakers' table included Vincent P. Ahearn, executive secretary, National Ready Mixed Concrete Association; Noel J. Redmond, president, Blue Diamond Corp., Los Angeles, Calif.; and Harold E. Bender, president, Azusa Rock and Sand Co., Azusa, Calif.

Correction

AN ADVERTISEMENT by W. H. Lackey, Inc. in the October, 1956 issue of ROCK PRODUCTS incorrectly showed the National Ready Mixed Concrete Association symbol. This should have been the National Concrete Masonry Association symbol. The Lackey "mix-mizer" is not designed for use in ready-mixed concrete production.

Alabama Firm Operating

UNDERWOOD CONCRETE PRODUCTS Co., Mobile, Ala., subsidiary of Underwood Builders Supply Co., has started up a $250,000 concrete block plant which can turn out 1000 block per hr. Six steam curing kilns are included in the modern operation.

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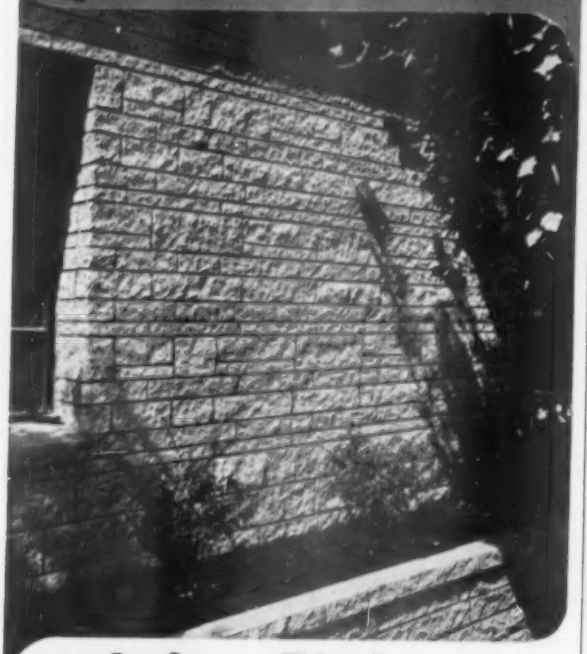
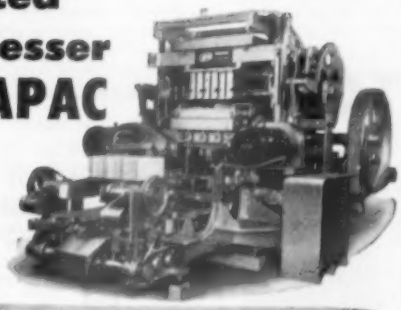
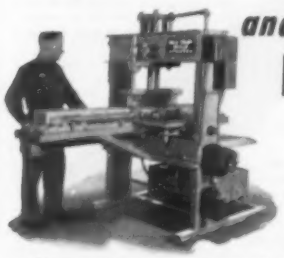


made from Block produced on a Besser VIBRAPAC





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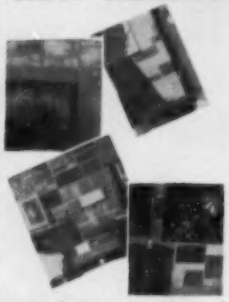

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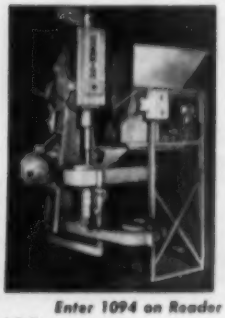

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Besser 8-Star Promotion of CONCRETE BLOCK

- Concrete Masonry Advertisements in Architectural and Building Publications.
- 28 Page Concrete Masonry Insert in Sweet's Architectural File.
- Permanent Exhibit in National Housing Center, Washington, D. C.
- Permanent Exhibit in Architects' Samples Corporation Building, New York City.
- Exhibit Display Units for Home Shows, Conventions, etc., loaned to block plants.
- Plan Books illustrating 225 Block Masonry Homes.
- Series of 26 Newspaper Ads to help Sell Concrete Masonry to the big Home Market.
- Cooperative Advertising Material, including Home Builders' Booklet . . . Jumbo post cards in full color . . . Blotters . . . Match Books . . . Bulletins . . . Radio scripts . . . Movie films . . . etc.

Creates Interest in Concrete Masonry... Stimulates Demand for All Types of Block ...Helps Plants to Sell More Units

You not only want to *produce* block... you want to *sell* block. The Besser Company helps you to do BOTH!

Through the medium of architectural and building publications, radio, newspapers, exhibits and a great variety of promotional material, the Besser Company is carrying the torch for the Block Industry. We are sincerely striving to get Mr. Public sold on the merits of Concrete Masonry.

Besser provides the world's leading machine for making block, plus the necessary "tools" for selling the block. This twofold program results in a solid foundation for progress for all VIBRAPAC Block Plants.

A portion of the Besser Company's permanent exhibit at the National Housing Center, Washington, D. C. Shows many new and interesting concrete masonry wall patterns.

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A 8927-1PBC

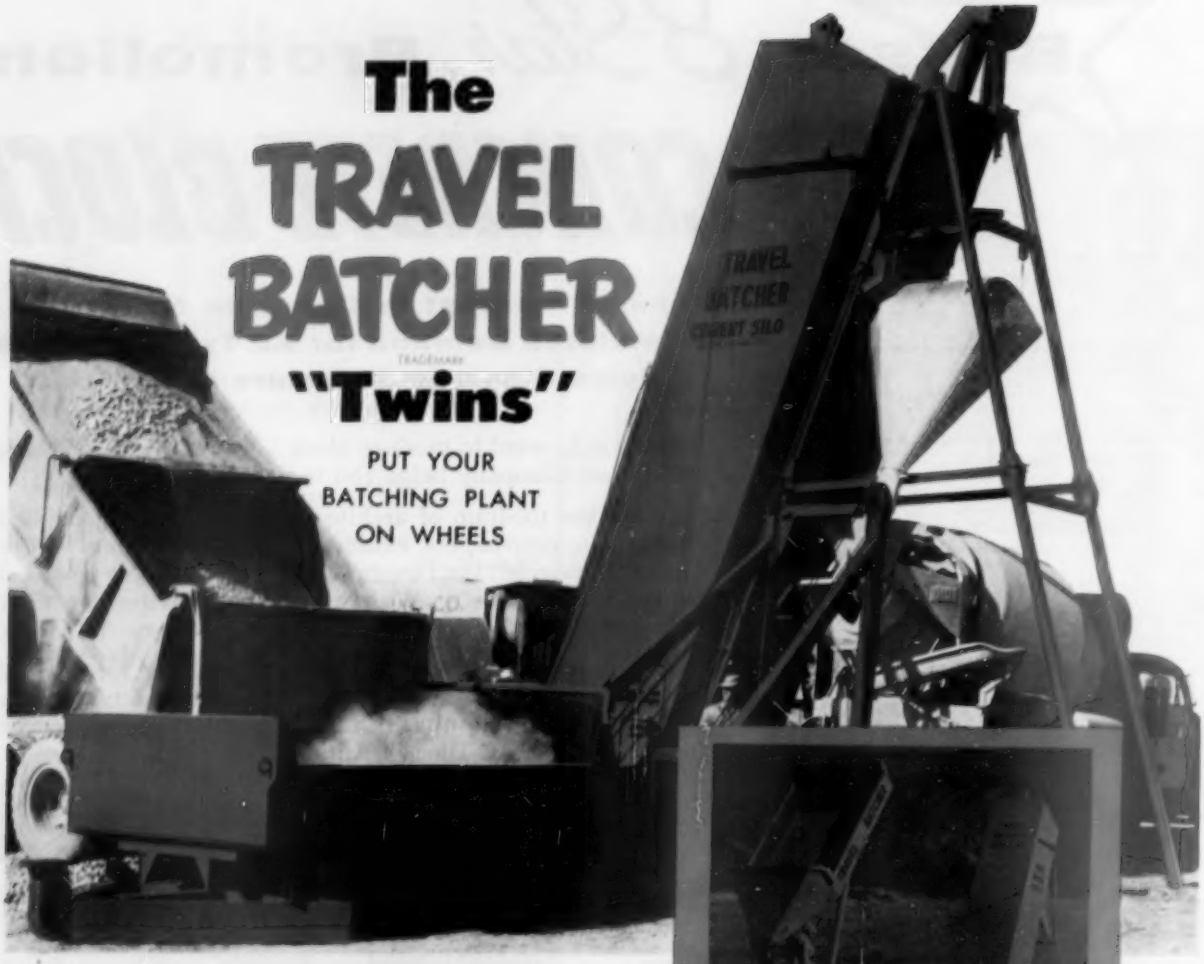
BESSER COMPANY

World's Leading Manufacturer of Concrete Block Machinery

ALPENA, MICHIGAN, U. S. A.

The TRAVEL BATCHER "Twins"

PUT YOUR BATCHING PLANT ON WHEELS



- Give you a continuous supply of quality concrete
- Move your batching plant right to the job-site
- Make one mixer truck do the work of several
- Save time, labor, materials, and equipment

You can erect the Travel-Batcher Cement Silo in minutes, using the Travel-Batcher, as shown above.

THE NEW TRAVEL-BATCHER **PORTABLE CEMENT SILO**

Now you can use lower cost bulk cement — and save both time and labor cost. The Travel-Batcher Cement Silo sets up, ready for batching, in 30 minutes. One-man, high-capacity operation. It is designed and built to give you long, trouble-free service.

Capacity: 200 barrels (regular model) 350 barrels (special model)

Power: 20 h.p. gas engine or 10 h.p. electric motor

Traveling dimensions: overall length 33'; height 12'; empty wt. about 14,000 lbs.

THE VERSATILE **TRAVEL BATCHER**

Now you can handle profitable jobs you would otherwise turn down. Sets up ready for batching in 10 minutes. Production up to 100 yards per hour. Can be used as a transfer unit, a weigh batcher. Charge it with front-end loader from job-site stockpile, or with dump truck, hauling dry materials from plant.

Write for complete information, prices, and name of your nearest Travel-Batcher representative.

TRAVEL BATCHER CORP. 6450 Holladay Blvd. Salt Lake City, Utah

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FIND THOSE FINES IN YOUR CLASSIFIER OVERFLOW

Duraclones SOLVE SPECIFICATION PROBLEMS

Installation of a 20" DURACLONE at the Hayes County Gravel Company plant at San Marcos, Texas brought a profitable solution to a fine sand problem in its concrete mix. Three tons per hour of clean, fine sand, is blended back into the finished sand production. Manager McBride B. Wilson says: "The Cone is doing an excellent job, and we are very pleased with it."

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NEW!
INCREASES OUTPUT!
CUTS COSTS!
THIS SUCTION DREDGE AGITATOR (Pat. Pend.) keeps nozzle clean, loosens compacted deposits, crushes oversized stones. Pays for itself quickly. Write for free bulletin. *Trade mark

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Dredge and Pump Engineers

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ROTARY DRYERS & KILNS: 4'6" x 40'; 4'6" x 32'; 3'6" x 25'; 5' x 24'.

ROTARY COOLERS: 104" x 80'; 104" x 70'.

BALL MILLS: 6'x22" conical; 5'x22' unused, 6'x16', 5'x9', 6'x5'.

MINE HOISTS: 24"-36" dia. x 18"-24" wide.

AIR COMPRESSORS: 75 HP—280 HP. 880 CFM to 2230 CFM.

JAW CRUSHER: 8" x 10".

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45 ton General Electric Diesel Elec. Loco.
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1½ yd. Bucyrus-Erie 38-B Diesel Crane 1948.
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60"x48" to 6"x3"

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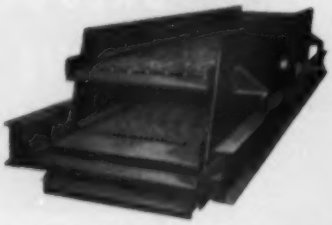
BONDED EQUIPMENT BARGAINS

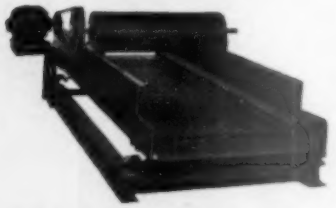
IMMEDIATE SHIPMENT FROM OUR FACTORY — WRITE, WIRE OR PHONE

NEW BONDED® HEAVY DUTY VIBRATING SCREENS



Model Number	Screening Area	No. of Decks	Sale Price
124AS	2' x 4'	1	$ 443
224AS	2' x 4'	2	472
126AS	2' x 6'	1	472
226AS	2' x 6'	2	501
136AS	3' x 6'	1	501
236AS	3' x 6'	2	688
336AS	3' x 6'	3	956
138AS	3' x 8'	1	675
238AS	3' x 8'	2	815
338AS	3' x 8'	3	996
188BS	3' x 8'	1	1231
288BS	3' x 8'	2	1282
388BS	3' x 8'	3	1375
248BS	4' x 8'	2	1845
348BS	4' x 8'	3	2035
2410BS	4' x 10'	2	1953
3410BS	4' x 10'	3	2305
3412BS	4' x 12'	3	2635

NEW BONDED® GENERAL DUTY VIBRATING SCREENS



For mineral, chemical and other industrial products. Fast, efficient and economical for cleaning, sizing, grading, dewatering. Made in all metals including stainless steel. Enclosed models for hot materials or dust control. Bonded screens are built for any screening operation, wet or dry. HEAVY DUTY MODELS, TYPE BS: 4-bearing positive throw, eccentric shaft; 3' x 8' to 5' x 14', 1 to 5 decks. GENERAL DUTY SCREENS, TYPE AS: eccentric weight mechanism, spring mounted, 1 to 3 decks, 2' x 4' to 3' x 8'. Write for new 8-page Bulletins 1086 and 1087.

NEW BONDED® TROUGHING IDLER CONVEYOR BARGAINS

Complete Ready-Fab sections quickly and easily joined together on the job. We take our loss on our stock of short length belting. You can save as much as 50% on the BONDED CONVEYOR SPECIALS listed, with conveyor belting in two pieces. Conveyors are equipped with 5" roll diam. idlers and return rolls, 20" diam. head pulley and 16" diam. tail pulley mounted on 2 1/4" or 2-7/16" diam. shaft. Belt is new 4-ply, 28-oz. duck, 1/4" top rubber cover x 1/32" bottom cover and is fresh stock made by leading manufacturers.

Remember, You Save Up To 50%

CONVEYOR PRICES INCLUDE BELTING

Belt Width	Length of Conveyor	List Price	Sale Price
14"	25'	$1397	$ 722
14"	50'	2223	1144
14"	85'	3377	1733
16"	20'	1262	636
16"	45'	2137	1088
16"	60'	2642	1359
16"	90'	3712	1900
18"	25'	1477	794
18"	45'	2317	1166
18"	70'	3142	1648
18"	85'	3697	1933
18"	100'	4353	2220
18"	130'	5362	2797
20"	25'	1517	828
20"	60'	2882	1533
20"	75'	3467	1838
20"	90'	4052	2145
24"	25'	1590	898
24"	45'	2430	1330
24"	70'	3480	1875
24"	100'	4740	2514
24"	120'	5580	2950
24"	150'	6840	3603
30"	50'	2911	1617
30"	70'	3871	2119
30"	90'	4831	2614
36"	25'	1818	1118
36"	45'	2858	1678
36"	60'	3634	2096
36"	100'	5718	3214

For conveyors longer or shorter than those listed above, add or deduct the following per foot prices according to belt width. Prices include belting.

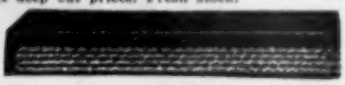
For 14" belt	$16.84 per foot
For 16" belt	18.94 per foot
For 18" belt	19.24 per foot
For 20" belt	20.37 per foot
For 24" belt	21.78 per foot
For 30" belt	24.75 per foot
For 36" belt	27.95 per foot

Write For Bulletin #1138

NEW CONVEYOR BELTING

SAVE UP TO 25%

Heavy duty 4-ply 28 oz. duck, 1/4" top rubber cover x 1/32" bottom cover, 12# to 15# average friction pull, 800# to 1000# average cover tensile, rubber belting having high tensile strength, tough cotton duck, strong carcass and proper flexibility. For heavy boxes, bags and bulk materials. Troughs easily. Famous brands at deep cut prices. Fresh stock.



Width	Ply	List Price	Sale Price
14"	4	$3.43 foot	$2.75 foot
16"	4	3.86 foot	2.88 foot
18"	4	4.27 foot	3.19 foot
20"	4	4.69 foot	3.69 foot
24"	4	5.55 foot	4.14 foot
30"	4	6.77 foot	5.06 foot
36"	4	8.01 foot	6.00 foot

A high grade of heavy duty 4 and 5-ply, 28 oz. duck, 1/8" top rubber cover x 1/32" bottom rubber cover, 16# to 19# average friction pull, 2500# to 3000# average cover tensile belting. This belt is for more severe service, high tonnages and abrasion resistance. For handling stone, mineral ores, concrete, cement, coal and other similar materials, both wet and dry. Belt has molded rubber edge.

Width	Ply	List Price	Sale Price
16"	4	$4.59 foot	$3.36 foot
18"	4	5.09 foot	3.72 foot
20"	4	5.57 foot	4.24 foot
24"	4	6.56 foot	4.80 foot
30"	4	8.05 foot	5.89 foot
24"	5	7.68 foot	5.61 foot

Other widths, plies, duck weights and cover thicknesses. Available at low prices. Write for Free Sample.

NEW IDLERS AND RETURN ROLLS 25% BELOW LIST PRICE

3-roll, 5" diameter Troughing Idlers for:

14" belt	$18.50	24" belt	$21.25
16" belt	19.25	30" belt	22.00
18" belt	20.50	36" belt	22.75
20" belt	20.75	48" belt	25.50

1-roll, 5" diameter Return Idlers for:

14" belt	$7.25	24" belt	$ 8.50
16" belt	7.50	30" belt	9.50
18" belt	8.00	36" belt	10.00
20" belt	8.25	48" belt	11.50

All steel. Interchangeable with other well-known makes. Furnished with easily replaceable pre-lubricated Sealed ball bearings. Also can be furnished with greasable type Alemite Fitted bearings at slight additional cost. Maintenance is negligible. Bonded Rubber Disc Impact Idlers Priced from $61.00. Write For Bulletin #1138.

NEW BONDED® FEEDERS

For high tonnage and controlled feed of Aggregate, Sand, Gravel, Crushed Stone, Clay products, Metallic Ores, Coal, Cinders and almost any other bulk material to Crushers, Screens, Conveyors, Mills and other process machinery. Feeder may also be driven from tail shaft of Bonded® Troughing Idler Conveyors, thus eliminating the necessity of two motors. Capacities to 225 tons per hour. Full information in Bulletin 1140. Write for it.

Priced from **$225.00**

BUILD IT YOURSELF WITH BONDED CONVEYOR PARTS & ACCESSORIES

Ready Made Head, Tail and Intermediate Conveyor Sections. All types of Idlers, Return Rolls, Belting, Reducers, Accessories and Motors in Stock so you can Build Your Own Conveyor. All Bonded Troughing Idler Conveyors (described in this ad) can be equipped with any accessory described below or use them on your present conveyor or Bucket Elevator. Write for Bulletin #1138.

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Head & Tail **$149.00**

Self-Aligning Idler **$60.75**

Flat Roll Idler **$12.50**

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YOU ARE WELCOME TO Visit the Bonded Factory Any Time.

Wing Pulley **$71.00**

Screw Takeup and Frame **$30.25**

Rubber Disc Impact Idler **$61.00**

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128 BELLVIEW — *Mfgrs. of Scales, Conveyors, Conveyor Parts, Idlers, Vibrating Screens, Crushers and Feeders* — **COLUMBUS 7, OHIO**

FOR SALE

1—Northwest Model 80D 2½ yd. Shovel, Ser. No. 8736, with Murphy Diesel 160 HP engine with electric starter, gantry, 30" steel treads. Good working condition. Price, F.O.B. North Carolina shipping point . . . $25,000.

1—Bucyrus-Erie Model 22B ¾ yd. Comb. Shovel-Dragline, Ser. No. 67114, with boom fairlead, laggings and ¾ yd. Dragline Bucket. Good working condition. Price, F.O.B. North Carolina shipping point $11,500.

1—Link-Belt-Speeder Model LS-50 ½ yd. Comb. Shovel-Dragline, Ser. No. 5D-475 and with ½ yd. Dragline Bucket. Good working condition. Price F.O.B., North Carolina shipping point . . . $6,000.

1—Koehring Model 605 1½ yd. Shovel on 125" x 104" crawlers with 30" shoes, with CAT Model 13000A engine, Ser. No. C8366. Good working condition. Price, F.O.B. North Carolina shipping point . . $25,000.

6—Koehring Model WD-60 Dumptors. Good working condition. Price, F.O.B. North Carolina shipping point . . $3250. up to $8500.

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Cedarapids 4033 hammermill secondary unit. Rebuilt.
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Cedarapids single pass plant with 1624 jaw on rubber.
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12" x 35' inclined open elevator. New.
Seco 3' x 10' triple deck vibrating screen. Reconditioned.
27½ ton, single-compartment, 8' x 13' bin.
60-ton, two-compartment, 8' x 18' storage bin with clam gates.
100-ton, two-compartment, 13' x 23' bin.
Special bins to your specifications.
Conveyors—18"—24"—30". Also conveyor belting.
18" diameter x 20" face magnetic pulley.

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Lorain 820 2-yard diesel shovel-crane-drag. Reconditioned.
Lorain 75A shovel, 1¼ yd. Very good condition.
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P & H 255A, ¾-yard diesel shovel, International diesel.
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Lorain Byers 83 ¾-yard gasoline powered clamshell.
Lorain 40A ¾-yard clam-crane, Waukesha gas engine.
Buckeye 70 ¾-yard crawler clam, gas power.
Insley K-12 ½-yard crawler clam-crane.
Bucyrus-Erie 10B ⅝-yard shovel, hoe, crane.
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Lorain TL-20 6x4 moto-crane.
Lorain MC-425 moto-crane.
Michigan TM16 truck crane and clamshell.
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1—Euclid 18-yard twin engine scraper. Very good condition.
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Cat. D4600, 6-cylinder diesel engine, Twin Disc clutch.
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Cat. D13000, 6-cylinder diesel engine with radiator and Twin Disc clutch. Rebuilt.
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Barber-Greene model with drier, graduation unit, etc.

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160 cu. ft. Ingersoll-Rand gas portable.
500 cu. ft. Gardner-Denver diesel portable. Rebuilt.
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445 cu. ft. Ingersoll-Rand stationary, electric.

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CAMP HILL, PA.

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Northwest 6, 1¼ yd., dragline-crane, 95' boom.
R-E 22B ¾ yd. Shovel-Crane-Backhoe-Drag.
Northwest 80-D Diesel Shovel 2½ yd. New 1952.
Lorain L-820 2-yd. Shovel-Drag-Crane 100' bm.
Bue-Erie 54-B Diesel Shovel, 2½ yd.
Lorain Model MC 254W truckcrane 25 tons cap.
Bay City 1007G1 truck crane 25 tons. Diesel.
Link-Belt HC90 truck crane 25 tons 90' alloy boom.

BELT CONVEYORS

30" wide Steel Pan Conveyor 28' center to center.
42" x 1000 ft. with rollers electric motor drive
60" x 350 ft. and 60" x 600 ft. complete with rollers
36" x 500 ft. complete w/rollers and elec. motor drive

CRUSHERS—KILNS—DRYERS

JAW: Acme 10x30, 14x24, 14x28, 10x42, 10x32, 18x32, 25x40, Eagle 20x36, Diamond 24x36", Cedar Rapids 10x20, 20x36, 25x40, Farrell 10x20, 18x30, 14x36, 18x36, 36x48, Buchanan Type C 30x42, Acme 18x32, Traylor 18x36, 24x36, Allis-Chalmers 30x18, Good Roads 10x30, Telsmith 18x32, Traylor 42x48, Allis-Chalmers 42x60.
GYRATORY: Al-Chal 22, 6", 7½", 8, 9, 9K, 10, 20 and 30 Telsmith 8B, 28" Intercone.; Kennedy Van Saun 7, 10, 35½-S, 37½, 38; Traylor TY 1'6", 4' Type TS, TY 5'.
ROLL: Cedar Rapids 40x20, Pioneer 40x22, Pioneer 36x18, Telsmith 24x16, Universal 40x24 double.
HAMMERMILL: Jeffrey Type 3H 24x20, Type H 36x24, 36x36, 36x42, Eagle 24x24, Stedman 24x30, Cedar-Rapids 60-50, 30x33, Penn Model HXH 100
BALL MILL: K.V.S. Type M 6'x8' Airswept, Marcy No. 64½, Hardinge conical 10"x30", 10"x36", 6"x22", 6'x12', 5'x7', A-C 6'x16'.
TUBE MILLS: 5'x16', 5'x20', 5'x22', 6'x12'.
ROD MILL: Jackson & Church 4'x10' 10 ton rods, new. Marcy 5x8, 6x12, 6x12, Ruth 4'x11'.
AUTOCLAVES: Jackson & Church bolted head 56"x6' "Quick Acting" head 56"x6'.
CONE: Symons 2' and 3' coarse bowl.
KILNS: 4'x42', 5'x26', 6'x50'6", 6'6"x45', 7'x110', 10'6"x165', 8'x10', 6'x90'.
DRYERS: Louisville 6'x30', 6'x50', others 4'6"x40', 7'x50', 6'x30' complete with motor. NEW.
COMPER MILLS: A-C 7'x24' with motor drive.

CRUSHING PLANTS

Cedar-Rapids AA-2226 primary port. Diesel.
Cedar-Rapids 3033 hammermill Diesel. Trailer mtd.
Eagle washing plant, classifier sand screws, screen.
Pioneer 150 Primary 2026 Cat D8800 Diesel.
Pioneer Secondary 4022 roll Cat. D 13000.
Cedar-Rapids Pitmaster Portable.
Cedar Rapids 40x33 Port. Secondary, Diesel.
Ace-West, 2040 Port. Primary.
Pioneer Port. 11x36 jaw, 40x20 rolls.
Pioneer 24V Gravel Plant.
Amer. Good Roads 15x30, Diesel. Complete.
Universal 20x36 jaw, 36"x18" roll, plant complete.

CLASSIFIERS

Conveyor 4'x10' sand-dewatering pump and motor.
Dorr 5'x20' and 6'x27' Duplex Rake types.
Hardinge 4'x14' countercurrent, scrubber.
Telsmith Twin Screw Rewasher 18"x11'6".
Dorr Type DSFH 20' dia. bowl.

CONCRETE PLANTS AND EQUIPMENT

Blaw-Knox 4180 3 compt. aggr. 1 cement 4000 bbls.
Erie Strayer port. concrete mix plant 25 cds. per hr.
Blaw-Knox 100 tons 3 compt. aggr. 400 Bl cement.
Butler 600 bbl cement bin. All equipment.
Noble CA-242, complete plant, almost new.
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BOX N-65, ROCK PRODUCTS, 79 W. Monroe St., Chicago 3, Ill.

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BOX O-72, ROCK PRODUCTS
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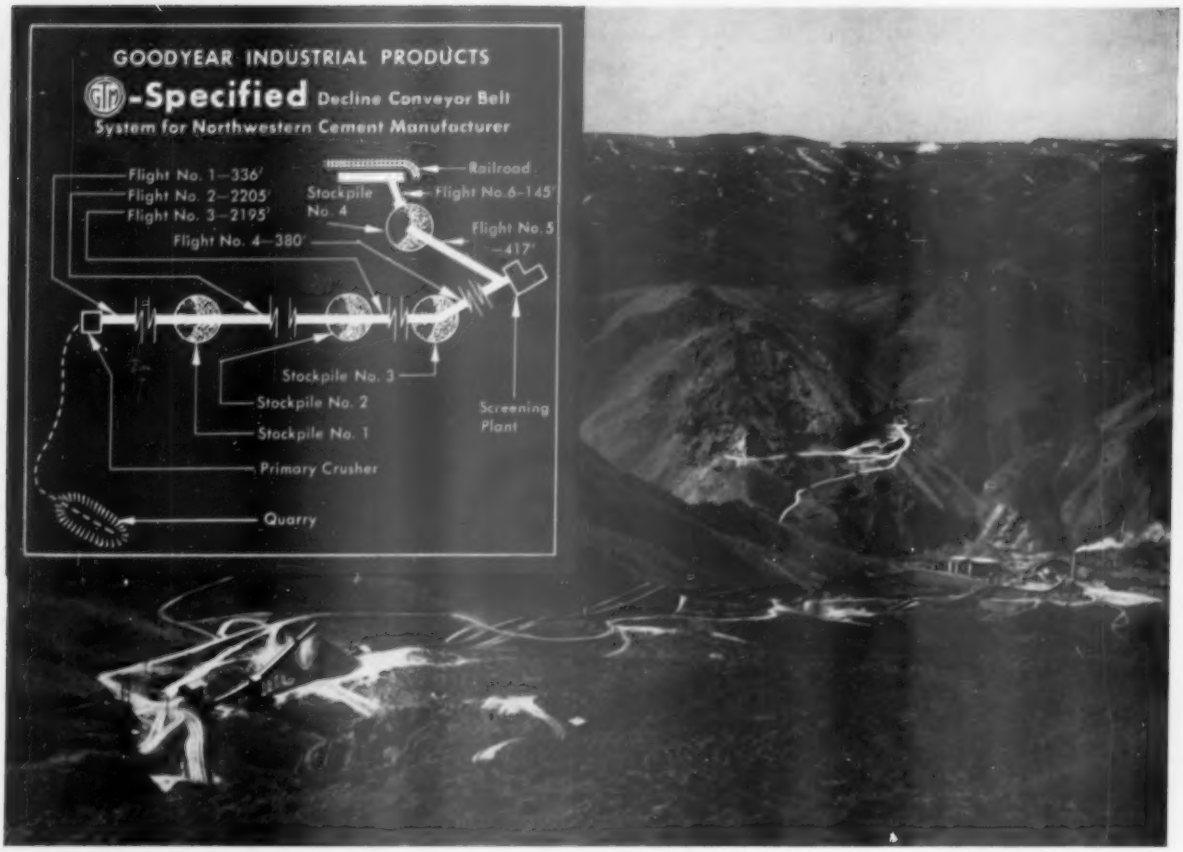

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